TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Key to successful textile maintenance.

Cleaning Laundry World. 1114 First Avenue, New York 21, N. Y. 5 p.

This fiber identification chart is intended as a working tool for drycleaners and launderers in the handling of modern fabrics. The most important natural and synthetic fibers are listed together with their appearance; end-uses; resistance to alkalis, acids, bleaches, solvents, mildew, light, abrasion and wrinkling; flammability; moisture absorption; dimensional stability; colorfastness; strength; and shrinking and felting tendencies. Recommended handling and finishing methods are given.

NATURAL FIBERS A 1

The relation of grade to the physical properties of retted flax fiber.

D. R. Gilling and D. E. J. Samuels. *J. Textile Inst. 47:* T129-T140 (March, 1956).

The traditional technique of hand-hackling has been adapted and standardized to give a uniform product on which measurements of physical properties of the fiber can be made. The expert assessment of grade of scutched flax has been correlated with the physical properties of the fiber. An outline of the method of discriminant function analysis is given in an appendix. 8 references.

Freezing point depression in assemblages of moist fibers.

J. M. Preston and G. P. Tawde. *J. Textile Inst. 47:* T154-T165 (March, 1956).

Examination of the moisture in fibers by the rate-of-cooling method shows evidence of freezing only when the moisture is above a limiting value with any fibers. The limiting value has been correlated (1) with the chemical composition of the fibers, e.g., the degree of substitution of cellulose acetate, (2) with the physical characteristics, e.g., with the crystallinity and (3) with other properties, e.g., absorption of water vapor. 28 references.

Sorption of water by cellulose fibers at low humidities, with special reference to mercerized cotton.

J. B. Taylor. *J. Textile Inst. 47:* T147-T153 (March, 1956).

Sorption data are presented for cotton mercerized without tension for regains up to 28.6 mg/g at 25-65°C. The results are examined on the basis of a theory due to Enderby, the requirements of which appear to be satisfied by mercerized cotton and Fibro viscose rayon, but not by cotton itself. 13 references.

MAN-MADE FIBERS A 2

Polymer progress. 1956 series. Part 2. Acrylic fibers and the spinning process.

J. A. Somers. *Man-Made Textiles 32:* 49-50 (April, 1956).

This article explains how the development of acrylic fibers will be closely influenced by developments in methods of spinning.

Preparation and properties of fibers containing mixed polymers. Part 1. Polyacrylonitrile-cellulose acetate fibers.

D. M. Cates and H. J. White, Jr. (Textile Research Institute). *J. Polymer Sci. 20:* 155-180 (April, 1956).

Fibers containing both polyacrylonitrile and cellulose acetate were spun using dimethyl formamide as a solvent. The relative polymer proportions ranged from 100% polyacrylonitrile to 20% polyacrylonitrile. The x-ray diffraction patterns, optical appearance, solubility, density, absorptive capacity for water and dyes, electrical resistivity and mechanical properties of the fibers were studied, and experimental results are given. In addition several experiments bearing on the structure of the fibers and the compatibility of the spinning solutions are reported. The results indicate that the fibers contain discrete regions of each polymer. It is possible that, for most of the relative concentration range, continuous networks of each polymer extend throughout the fiber. In addition, void spaces, probably resulting from the

drawing of the fibers, appear to be present. Photographs. Tables. Graphs. 16 references.

Preparation and properties of fibers containing mixed polymers. Part 2. Polyacrylonitrile-cellulose fibers.

D. M. Cates and H. J. White, Jr. (Textile Research Institute). *J. Polymer Sci. 20:* 181-195 (April, 1956).

In part 1 the preparation and properties of fibers containing both polyacrylonitrile and cellulose acetate were discussed. It has proved possible to hydrolyze the cellulose acetate without extensive side reactions to produce fibers containing both cellulose and polyacrylonitrile. The properties of such fibers are discussed in this paper. The fibers have been examined optically and using x-ray diffraction techniques. The absorptive capacity for water and direct dyes, the density, the electrical resistivity and the mechanical properties of the fibers have been measured. The results are compatible with a structure consisting of submicroscopic regions of each polymer throughout the fiber interspersed with void spaces that are probably produced during drawing. Photographs. Tables. Graphs. 3 references.

Isotactic polymers: fibers of the future?

J. W. S. Hearle. *Skinner's Silk and Rayon Record 30:* 354-359 (April, 1956).

The properties of isotactic polymers which make them suitable for fiber formation are discussed.

Nylon in industry.

G. Farrington (British Nylon Spinners Ltd). *Textile Wkly. 56:* 940-946 (April 6, 1956).

Applications of nylon continuous filament and staple to heavy duty end uses.

YARN PRODUCTION B

The formation and prevention of neps during processing of cotton. Part 1.

H. P. Hartenhauer. *Textil- u. Faserstofftech 5, No. 11:* 603-606 (1955); *in German.* Through *BCIRA 36:* 165 (1956).

An attempt is made to analyze nep formation during the cotton spinning process by discussing various nep types, the method of nep counting, neps due to differences in cotton maturity and those formed during processing (opener, scutcher, card, draw-frame) and spinning experiments with nep control (with reference to mean results from several experiments), and standard regularity of the spun yarn.

Economical tendencies in cotton spinning.

B. Kirschner. *Textil-Praxis 11, No. 1:* 14-19 (1956); *in German.* Through *BCIRA 36:* 182 (1956).

Two spinning plants are examined (blending and cleaning, carding, drawing, ring-spinning) to show that it is possible to introduce economical measures and that these measures deserve utmost consideration in order to improve quality and increase productivity. The present rationalization problems in cotton spinning are listed and reference is made to the relevant literature.

Processing blends of Dacron/cotton.

E. I. du Pont de Nemours and Co., Inc., Wilmington, March, 1956. 8 p. Technical Information Bulletin D-66.

Cotton system processing and twist-setting of yarns containing a high percentage of Dacron.

OPENING, PICKING, FIBER PREPARATION B 1

Modern preparation and opening methods in two-roller (condenser) spinning.

K. Muller. *Melliand Textilber. 36, No. 12:* 1205-1209 (1955); *in German.* Through *BCIRA 36:* 114 (1956).

A manual for testing procedures. Part 1. Cleaning machinery.

G. Guggenheim. *Textile Bull. 82:* 80-82 (April, 1956).

Methods of testing the efficiency of opening hoppers and pickers are presented.

The Shirley opener.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 1, No. 4:* 124-126; 140-142 (1955). Through *BCIRA 36:* 114 (1956).

The first article gives a brief description of the Shirley opener and the No. 6 hopper opener, and in the second article illustrated instructions are presented for the re-covering, with saw tooth wire, of the beater of the Shirley opener.

The hackling of hard fibers on the horizontal machine.

S. A. G. Caldwell. *Textile Recorder 73:* 52-53 (April, 1956).

The application of a modified version of the horizontal hackling machine to the processing of jute and similar hard fibers.

The Rieter automixer.

F. Preysch. *Textile Recorder 73:* 54-56 (April, 1956).

A fully automatic machine which incorporates the principles of doubling in addition to the normal drafting into the blending of raw materials.

CARDING AND COMBING B 2

The Autocount equipment development.

E. A. Chandler (Bepco Canada Ltd). *Can. Textile J. 73:* 56-58 (April 6, 1956).

Principles of operation and performance tests of a fully automatic control for wool carding machines.

Carding problems.

R. Taine. *Industrie Textile.* 807-810 (November, 1955); *in French.* Through *BCIRA 36:* 115 (1956).

Improvements in card clothing are discussed, with reference to two new types (developed by P. Destombe et Cie), the wool card Ovoflex, and the flat card (Maquet system).

The Universal (roller and clearer) card models, Gilljam system.

Z. ges. Textil-Ind. 58, No. 1: 14-17; *No. 2:* 48-50 (1956); *in German.* Through *BCIRA 36:* 181 (1956).

The cotton card. Its most important transformations and improvements.

Bull. Inst. Textile France No. 56: 75-79 (October, 1955); *in French.* Through *BCIRA 36:* 145 (1956).

In this review, reference is made to the classical cards constructed, respectively, by J. J. Rieter and Marzoli, the new revolving-flat cotton carding machine developed by Bettoni, the Platt lap converter and the Whitin roller card for synthetic fibers. Details are also given of some innovations and modifications of individual devices, and systems for improving the carding efficiency and increasing production, e.g. the Nuclotex device and the Cardpen.

The performance of flat and doffer on the cotton card.

E. Reuter. *Textil- u. Faserstofftech. 5, No. 12:* 644-645 (1955); *in German.* Through *BCIRA 36:* 145 (1956).

Reasons for the difference in the work performed by flat and doffer are theoretically discussed, with reference to the forces acting on the two components of the cotton card.

DRAWING AND ROVING B 3

The step drawing system on the flyer.

W. Meyer. *Textil-Praxis 10, No. 12:* 1216-1220 (1955); *in German.* Through *BCIRA 36:* 115 (1956).

The development of a closer adjustment on the Toenniesen high-draft step drawing system for the flyer has resulted in an improvement of regularity and also increases the processing stability even at very high drafts. Stapled man-made fibers can be advantageously processed in sliver form on simple nip-roller draw-frames with higher draft.

The A.10 bi-coil drawing frame.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 1, No. 4:* 127-132 (1955). Through *BCIRA 36:* 115 (1956).

Features of this machine, which produces half-weight sliver, are described.

New worsted drawing machinery.

Prince-Smith and Stells, Ltd. *Wool Record 89:* 673-675 (March 29, 1956); *Textile Wkly. 56:* 879-880 (March 30, 1956).

New Raper Autoleveller machinery for drafting long crossbred wool with doubled output. Photographs.

Rational work with synthetic roller covers.

G. Porsche. *Textil-Praxis 11, No. 1:* 32-35 (1956); *in German.* Through *BCIRA 36:* 181 (1956).

The advantages of synthetic roller covers are discussed, and reference is made to special mounting devices for these covers.

Fluctuations in mass or moisture?

J. Kanira. *Textil-Praxis 10, No. 12:* 1222-1224 (1955); *in German.* Through *BCIRA 36:* 129 (1956).

In order to ascertain whether the periodic oscillations recorded by moisture-sensitive electronic instruments result from periodic moisture accumulation, a sliver was introduced into a conditioning apparatus and dried, and then examined by means of the regularity tester which was mounted above the now opened door of the conditioner. It was found that the periods had disappeared after drying of the sliver.

Process and equipment for the production of condensed slivers on single cards.

R. Hunlich. *Melliand Textilber. 36, No. 12:* 1209-1211 (1955); *in German.* Through *BCIRA 36:* 114 (1956).

Reference is made to the Schorsch-Mayer single-card set with breaker card (German Pat. 899 019) for cotton waste (constructed by the Spinnbau (GmbH). It is claimed that the yarn is even and shows a uniform arrangement of the fibers owing to their greater parallel length.

How to measure and control waves in drawing.

N. H. Pomfret. *Textile World 106:* 130, 133 (April, 1956).

Fibers that get out of control when rolls slip or are not set correctly are prime causes of excessive wave length and amplitude in drawing sliver. Results of some research on the cause and prevention of excessive sliver variation are presented.

How drafting waves affect comber noils.

W. E. Morton. *Textile World 106:* 131 (April, 1956).

Fibers in card sliver are bent at one or both ends to form hooks. The direction in which these hooks travel has a very definite effect on drafting waves and comber noils.

Uniformity in drawing.

Fibre and Fabric 109: 4-5 (March 31, 1956).

In order to achieve uniformity in spinning the author recommends examination of worsted and staple fibers to determine the draft in drawing, the volume of fibers that pinning bars or porcupine combs will allow, ratch and speed of porcupines and the draft in spinning.

SPINNING, WINDING, TWISTING B 4

Theoretical determination of balloon shape and tension in continuous ring-spinning.

J. Detry. *Rev. Textilis 12, No. 1:* 17-27 (1956); *in French.* Through *BCIRA 36:* 182 (1956).

After a brief introduction, the author discusses the forces acting on the thread balloon, and reviews the theories not taking into account the resistance of air (Linder, Gegauff, Baltz, Burckard, Mack, and Bracewell and Greenhalgh) and methods for determining balloon tensions, the values given referring to balloons formed during spinning at an almost constant speed of the traveller.

Electrical drive equipment for speed frames and ring spinning machines.

H. Auderset. *Swiss Tech. No. 1:* 48-51 (1956).

The P.1, P.3, and P.4 ring frames.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 1, No. 4:* 120-123, 136-139 (1955). Through *BCIRA 36:* 115 (1956).

The P.1 ring frame has been designed for large package, high-speed spinning of counts ranging from 16s to 32s. The P.3 produces large packages of coarse-count yarns (up to about 16s count). The P.4 produces large packages of fine-count yarns (30s-80s count). Brief specifications are given for each of these three machines.

The organization of doffing operations on the continuous spinning machine.

A. Martin. *Industrie Textile.* 827-829 (November, 1955); *in French.* Through *BCIRA 36:* 139 (1956).

The efficiency of a doffing system is studied by taking into account the number of bobbins doffed per hour, the mean weight of yarn per bobbin, the production of the spinning machine in grams per spindle per hour, the number of bobbins produced per hour by one machine, the number of machines per bobbin doffer, and the production cost with and without a doffer.

The periods of the mule spinning machine.

P. Muller. *Industrie Textile:* 811-818 (November, 1955); 897-901 (December, 1955); *in French.* Through *BCIRA 36:* 145 (1956).

The three phases of the spinning process on the mule (formation of the thread, backing-off, and winding) are discussed, with reference to the drives controlling the drawing system, run-out of the carriage, doubling spindles, reversing of the spindles, second motion shaft winding and counter fallers during backing-off and winding, going-in of the carriage, winding spindles, and unlocking.

The single-process production of stretch yarns.

F. Scragg (Sydney and E. Scragg Ltd). *Man-Made Textiles 32:* 51 (April, 1956).

Theoretical aspects of false-twisting in relation to quality.

Notes on cylindrical cheeses.

K. Schmutzler. *Textil- u. Faserstofftech. 5, No. 12:* 653-654 (1955); *in German.* Through *BCIRA 36:* 148 (1956).

The disadvantages that may arise from the use of cylindrical cheeses are pointed out and critically examined on practical examples.

A new thread guide with cleaning device on cheese winders.

F. Muller. *Z. ges. Textil-Ind. 57, No. 24:* 1567 (1955); *in German.* Through *BCIRA 36:* 117 (1956).

The new arrangement is characterized by Plexiglass discs which guide the thread to the strong polished clearer mounted on a metal base. For the elimination of very thick places in the yarn, special double clearers are recommended, with their slits at a right angle to each other and arranged at such a distance that they can be easily exchanged and cleaned. Breaking or catching of coarse yarn (in the case of large balloon formation) is prevented, and any fiber fly, impurities and husk particles are thrown off downwards.

The Foster-Muschamp 66 automatic filling winder.

Foster Machine Co. *Am. Textile Reptr. 70:* 75, 77, 82 (April 19, 1956).

Specifications and operator duties are given.

The Autocopser A-S-E.

H. Eigenbertz. *Melliand Textilber. 36, No. 24:* 1227-1232 (1955); *in German.* Through *BCIRA 36:* 117 (1956).

Constructional details are given of the fully automatic Schlafhorst weft winder and the improvement of yarn quality and economic advantages are pointed out.

YARNS B 5

Rubber thread covering machine.

H. Rittinghaus. *Melliand Textilber. 37, No. 1:* 29-31 (1956); *in German.* Through *BCIRA 36:* 146 (1956).

The development of rubber-thread covering machines is reviewed and reference is made to the construction of the machine (produced by P. F. Reinshagen, Ger. Pat. 855 609) shown at the International Textile Exhibition at Brussels in 1955.

The production and covering of rubber threads.

K. Richter. *Textil- u. Faserstofftech. 5, No. 12:* 664-667 (1955); *in German.* Through *BCIRA 36:* 145 (1956).

The use of natural and synthetic rubber for the production of elastic threads, the covering of rubber threads with multi-ply textile threads, and winding and storage of the products are discussed.

Bouclé and loop yarns.

G. Mehnert. *Melliand Textilber. 37, No. 1:* 21-25 (1956); *in German.* Through *BCIRA 36:* 146 (1956).

The structure is given of eighteen different bouclé and loop yarns (with corresponding photographs) produced on the Hamel fancy doubling frame.

Bulked yarns.

F. H. Clayton. *Textile Mfr. 82:* 187-188, 191 (April, 1956).

Comparison of the properties of bulked yarns prepared by different processing methods. Photographs.

The influence of twist on textile yarns. Part 9.

A. Webster. *Textile Mfr. 82:* 167-170 (April, 1956).

A discussion of the effects of crimp and twist on specific fabrics such as bathing costume cloths, ninon curtains, georgettes, voiles, moss crepes, etc. Photographs.

Correlation between mean fiber length and yarn irregularity.

P. Grosberg (South African Wool Textile Research Inst.). *(Letter to the editor). J. Textile Inst. 47:* T179-T180 (March, 1956).

The analysis of variance shows that one can calculate a very good approximation of the yarn irregularity from the mean fiber length, diameter, and the count of the yarn.

FABRIC PRODUCTION C

Tufting: British developments.

Fibres 17: 102-103, 116 (April, 1956).

This brief review of carpet production by tufting discusses: recommended counts and gauges of yarns; sequence of tufting operations; dyeing; latex backing; and machines available. Photographs.

WARPING, SLASHING, YARN PREPARATION C 1

Quality improvement of warps and increase of sizing machine efficiency by impulse currents.

R. Burgholz. *Textil-Praxis 11, No. 1:* 42-46 (1956); *in German.* Through *BCIRA 36:* 185 (1956).

Sizing experiments on cotton warps by means of impulse currents in the drier are discussed. The remarkably low elongation of the yarn is due partly to the treatment with impulse currents and partly to the modifications of the sizing machine associated with it, as well as to the favorable drying action of the hot-steam/air mixtures. This drying method also improves the handle and quality of the warp and, at the same time, considerably increases the productivity of the machine.

Observations on the heating of size boxes.

K. Ramaszeder. *Textil- u. Faserstofftech. 5, No. 12:* 655-656 (1955); *in German.* Through *BCIRA 36:* 149 (1956).

Factors necessitating heating the size in the size box (loss of heat due to (1) the heat taken up by the yarn, (2) evaporation of the size, and (3) radiation of the free size-box surfaces) are discussed, with reference to direct and indirect heating systems. Correct heating of the size box is regarded as one the main factors responsible for sizing efficiency.

The behavior of the warp during sizing.

R. Cantegrit. *Rayonne et Fibres Synthet. 11, No. 12:* 1877-1886 (1955); *in French.* Through *BCIRA 36:* 149 (1956).

Attention is drawn to the manner in which the fibers are drawn before and during sizing and during drying of the warp, and the importance of the drying process, and some defects originating from faulty sizing and drying (warp streaks, shiny threads, formation of bands and edges, spots on the warp, size stains and bars, and water marks) are discussed.

Sizing efficiency.

R. Schutz and S. Margulier. *Industrie Textile.* 833-837 (November, 1955); *in French.* Through *BCIRA 36:* 117 (1956).

Measurements of the dynamometric resistance, the elongation at break and the resistance to rubbing of sized yarns make it possible to classify various sizes with regard to their ability to preserve the elasticity of the yarn and thus to eliminate fatigue phenomena in the yarns on the loom (the number of breakages being regarded as a measure of sizing efficiency).

Constant thread density during sectional warping.

Industrie Textile: 907-909 (December, 1955); *in French.* Through *BCIRA 36:* 148 (1956).

The use of sectional warping machines is limited by the difficulty of obtaining the condition necessary for all threads to have the same length and the same tension. This problem has been successfully solved by a process developed by the Ateliers Roannais de Construction Textile. This process consists in (1) winding on a support, with a groove of predetermined width and depth, a sheet of warp threads, the number of the threads corresponding to the desired warp density, and (2) determining either the transfer rate for the guide comb or the angle of the warping cylinder cone as a function of the number of revolutions necessary to fill the groove. Details of the process are given.

Direct spinning or rewinding of weft yarn for automatic looms.

F. Walz. *Textil-Praxis 11, No. 1:* 47-52 (1956); *in German.* Through *BCIRA 36:* 185 (1956).

The problem of rewinding the weft yarn from cops is discussed, with reference to the cost of the tubes and of filling the battery, loom efficiency, waste, yarn storage, and fabric quality. Comparison with the direct use of cops shows the advantages of rewinding.

WEAVING C 2

Historical development of the loom.

W. T. Swatek. *Z. ges. Textil-Ind. 58, No. 1:* 18-23 (1956); *in German.* Through *BCIRA 36:* 149 (1956).

The development of the loom from the weaving frames (with vertical plane of warp threads) to the present shuttleless weaving machines is reviewed and illustrations are given.

From the card punching machine to the harness board.

J. Gielessen. *Z. ges. Textil-Ind. 57, Nos. 22-23:* 1494-1498; *No. 24:* 1575-1580 (1955); *in German.* Through *BCIRA 36:* 118 (1956).

The shuttleless Kovo loom.

L. Taticek. *Tex 14, No. 12:* 1678-1679 (1955); *in Dutch.* Through *BCIRA 36:* 149 (1956).

Constructional details are given of the shuttleless Kovo loom in which the weft yarn is inserted either by air-jet (44 cm wide loom) or by water-jet (105 cm wide loom).

The Schonherr buckskin loom. Part 5.

A. Lang. *Textil-Praxis 10, No. 12:* 1235-1237 (1955); *in German.* Through *BCIRA 36:* 117 (1956).

The general devices of the Schonherr spring pick loom (tappet loom) of which use is also made in the buckskin loom, are described.

The Schonherr buckskin loom. Part 6.

A. Lang. *Textil-Praxis 11, No. 1:* 35-40 (1956); *in German.* Through *BCIRA 36:* 185 (1956).

The general components of the Crompton loom are compared with those of the Schonherr buckskin loom.

Rising and falling boxes.

J. Starkie. *Textile Mfr. 82:* 177-181 (April, 1956).

Operation, setting points and mechanism involved in the arrangements for two, four and six compartments are explained with diagrams.

Driving mechanisms on high speed looms for heavy cloth.

W. Liebchen. *Melliand Textilber. 37, No. 1:* 32-35 (1956); *in German.* Through *BCIRA 36:* 150 (1956).

Details of the picking motion mechanism are discussed with reference to experiments on heavy worsted fabric woven with inferior-quality weft material at a speed of 120 picks per minute, using large shuttles. It is shown that the picking force

is determined by the time required for the shuttle to pass through the shed and not by the weight of the shuttle.

SRRL loom attachment makes weatherproof fabrics.

M. Mayer, Jr. (Southern Regional Research Laboratory). *Textile World 106:* 126-127, 200-204 (April, 1956).

New improvements on the SRRL high-pickage loom attachment make the attachment easily adaptable to several types of looms since it can be powered with an overhead drive in addition to the cam drive.

A new electric thread cutting motion.

E. Bremes. *Z. ges. Textil-Ind. 57, No. 24:* 1581-1582 (1955); *in German; Melliand Textiber. 36, No. 12:* 1243-1244 (1955); *in German.* Through *BCIRA 36:* 118 (1956).

The device described (developed and patented by Drahtex GmbH) consists of a swinging hammer whose cutting edge strikes the thread on a smooth plate. The essential feature of this construction is the fact that the thread cutter is set in motion, after each cop change, by electromagnets.

Various warp let-off motions.

W. T. Swatek. *Melliand Textilber. 36, No. 24:* 1233-1242 (1955); *in German.* Through *BCIRA 36:* 118 (1956).

Various passive and active (positive and negative) warp let-off motions are reviewed and illustrated and their uses, in dependence of the take-up motion, are pointed out.

The relative capacity of loom beams as a function of their dimensions.

J. Depommier. *Industrie Textile:* 911-912 (December, 1955); *in French.* Through *BCIRA 36:* 148 (1956).

Tables are given showing the capacity of loom beams as a function of flange and bobbin diameters.

Possible economies of pickers and picking sticks.

A. Sucher. *Textil- u. Faserstofftech 5, No. 9:* 516-519; *No. 10:* 556-557 (1955); *in German.* Through *BCIRA 36:* 149 (1956).

Factors and phenomena which have a decisive effect on the durability of pickers and picking sticks are examined, with special reference to the qualitative properties of the raw material used, careful pretreatment and accurate fitting, and corresponding adjustment of other loom components such as gripper, weight, shuttle and picking-stick coupling.

Weaving shuttle with automatic bobbin change.

German Standards Committee. *Textil-Praxis 10, No. 12:* 1220-1221 (1955); *in German.* Through *BCIRA 36:* 118 (1956).

The draft specification DIN 64 680 contains the measurements, material and constructional details for shuttles with automatic bobbin change to be used in silk and rayon weaving.

The use of large shuttles in cotton weaving. Possibilities and limitations.

W. Thomas. *Melliand Textilber. 37, No. 1:* 35-41 (1956); *in German.* Through *BCIRA 36:* 149 (1956).

The purpose of using large shuttles is to increase the loom efficiency and the number of looms per weaver. The effect of cop size on the loom efficiency is shown on three typical examples, and the problems and difficulties involved in changing over to the use of large shuttles are discussed. In all cases, it is advisable to provide the looms with additional warp protectors or, at least, with mechanical weft feelers. Automatic let-off motions may also be fitted to the looms.

A study in loom fixing. Part 7.

F. D. Herring. *Textile Bull. 82:* 83-84 (April, 1956).

A checklist of parts contributing to broken battery or hopper stands.

Calculate labor cost from weaving pick rates.

Textile World 106: 113 (April, 1956).

A quick and simple formula to figure labor cost for weavers and batteryhands is given.

Work evaluation as a means for determining wages in weaving mills.

H. D. Lang. *Textil-Praxis 10, No. 12:* 1227-1229 (1955); *in German.* Through *BCIRA 36:* 139 (1956).

The work study, which is to serve as a basis for calculating the wages of a weaver, takes into account the type of loom, warp and weft (number of threads, material, strength of the material and twist), the speed of the loom, and the number of looms per weaver. Examples are given.

The mechanization of fancy weaving.

M. Paul. *Melliand Textilber. 37, No. 1:* 41-45 (1956); *in German.* Through *BCIRA 36:* 150 (1956).

The problem of mechanization in fancy weaving and of producing picture-like patterns on the fabric has been solved by a patented process in which the pictures and patterns are reproduced by so-called additive color mixing, based on the abil-

ity of the eye to see adjacent colors as the respective shade. The preparation of colored patterns is described and suitable fabrics are pointed out, with reference to patterns (in 3, 4, 5, and 6 yarn colors).

Setting of fabric and setting calculations for worsted and woolen yarns.

K. H. Kloth. Z. *ges. Textil-Ind. 57, No. 24:* 1568-1573 (1955); *in German.* Through *BCIRA 36:* 119 (1956).

Equations and examples are given for calculating the setting of a cloth, taking into account the yarn count, weave, yarn quality (mixture, spinning process, twist) and the quality of the cloth to be produced.

KNITTING C 3

Theory of the knitted structure.

J. Rab. *Hosiery Trade J. 63:* 87-89, 95 (April, 1956).

Knitting mill problems.

J. H. Blore. *Textile World 106:* 101-112 (April, 1956).

Seamer-training problem in full-fashioned hosiery; knit-goods shrinkage; 84-inch tricot beams for tricot; and pull threads in seamless hosiery.

Some recent developments in circular-knit hose machines.

I. R. Thornton. *Hosiery Trade J. 63:* 78-82 (April, 1956).

Brief review of Bentley fabric take-down attachment, Scott and Williams Model KN, Chell CBFWH, Stibbe Maxim 48, Hemphill Kleer Stitch machine, Fidelity Model LBM, Moretta Model DL, and Carolina K2F-500 knitter. Photographs.

Reducing needle breakage on the Reading.

W. H. Wilks. *Knitter 20:* 42-43 (April, 1956).

Honeywell electronic differential temperature control of Reading full-fashioned knitting machines has virtually eliminated needle breakage caused by temperature variations.

FABRICS C 4

Recent trends in fiber blending.

L. Sutton. *Textile Wkly. 56:* 782-786 (March 23, 1956).

This lecture on the critical effects of fiber crimp, denier, staple length and yarn twist in the selection of blend combinations includes a chart of the fabric performance of Terylene, nylon and Orlon blended with viscose.

Blending and fabric performance. Part 1.

J. F. Sayre (E. I. du Pont de Nemours and Co., Inc.). *Modern Textiles Mag. 37:* 38, 40-41, 44, 86-87 (April, 1956).

Blends of Dacron polyester fiber with rayon are outstanding among the highly complementary combinations. In the blend Dacron provides excellent dimensional stability, press retention, wrinkle recovery, abrasion resistance and strength. Rayon contributes reduced static propensity, improved resistance to hole melting and a measure of protection from pilling. Excellent results were obtained with a blend containing 70% Dacron and 30% rayon. Blend compositions are graphically correlated with the aforementioned properties.

The main technical tendencies in military clothing.

Masotte. *Bull. Inst. Textile France No. 56:* 51-64 (1955); *in French.* Through *BCIRA 36:* 150 (1956).

The present trends in military clothing and their effects on the manufacture, processes, raw materials used, etc. are discussed, and dyeing and finishing problems, e.g. water-, flame- and mildew-proofing, are reviewed. The necessity of reducing the weight of fabrics to be used for military purposes is pointed out (reference being made to the use of artificial fibers), and the problems of ageing and conditioning of stocks are briefly mentioned.

The development of wool-synthetic blended fabrics for summer flight garments.

G. O. Langlais and S. L. Fuller (Lowell Technological Institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, January, 1956. 67 p. WADC Technical Report 55-83.

A study of wool-synthetic blend fabrics was made to develop one suitable for summer flight clothing. Identically constructed fabrics composed of blends of nylon, Dacron, Orlon, and Dynel (each blended at 15%, 30% and 60%) with wool and an all-wool control were produced; these were tested and compared with respect to fabric properties. Particular emphasis on the flame-resistance characteristics, specifically centered on the degree of melting and dripping after ignition (indicated of major consequence in the establishment of this program) led to the selection of the final fabric, a 70% wool-30% Dynel fabric.

Rayon staple and cotton blends for work clothing.

J. Boyd, M. Butterworth and C. P. Tattersfield (Courtaulds Ltd). *Skinner's Silk and Rayon Record 30:* 380-396 (April, 1956).

Details of: the production of the yarns and fabrics; the manner in which the serviceability trials and laboratory tests were carried out; and test results.

Crease recovery and dimensional change of selected clothing fabrics.

E. M. Cormany and B. Densmore (Kansas Agricultural Experiment Station). *J. Home Econ. 48:* 265-268 (April, 1956).

Determinations on the crease recovery and dimensional stability of selected crashes and sheer cotton fabrics after repeated launderings with a soap and with a synthetic detergent showed that: (1) crease-resistant finishes tend to improve the crease recovery of voiles, chambrays and crashes; (2) permanent sizing does not tend to give satisfactory crease-resistance, (3) the use of resins to stabilize fabrics dimensionally is not entirely satisfactory. 5 references.

Protein structure in relation to some desirable fiber and fabric properties.

L. Fourt, R. Saxon and A. M. Sookne (Harris Research Laboratories, Inc.). *Am. Dyestuff Reptr. 45:* 215, 237-238 (April 9, 1956).

The desirable fabric and fiber properties which distinguish protein fibers from other fibers in their accepted uses are discussed. 14 references.

Acoustical properties of carpet.

C. M. Harris. *J. Acoust. Soc. American 27, No. 6:* 1077-1082 (1955). Through *BCIRA 36:* 198 (1956).

This paper reports measurements of the normal sound absorption coefficient and the resistance to air flow of a wide variety of carpet samples.

Performance characteristics of cushioning materials impacted under a heavy weight high impact shock machine.

E. N. Sabbagh (Lowell Technological Institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, February, 1956. 233 p. WADC Technical Report 55-229.

The energy absorption characteristics of cushioning materials impacted under a heavy weight high impact shock machine and analyzed by an analog computer system are reported. The dynamic performance curves in the form of graphs of energy versus maximum stress, and maximum stress versus maximum strain are given for a wide variety of materials including: wool pads, cotton wadding, crepe cellulose, rubberized and curled tampico fibers, resin-bonded felt wadding, rubberized curled hair, glass fibers.

How does the skin respond to Perlon?

H. Meiser. *Textil-Praxis 10, No. 12:* 1243-1244 (1955); *in German.* Through *BCIRA 36:* 131 (1956).

On the basis of extensive investigations carried out by Koch and Hussong it is concluded that Perlon causes neither eczema nor other skin diseases, but it is advisable to wash Perlon and nylon articles before wearing them in order to remove any residues of dyes or other finishing agents which may cause skin irritation.

Physiological properties of polyamide fibers.

O. Mecheels. *Melliand Textilber. 36, No. 11:* 1129-1135; *No. 12:* 1259-1266 (1955); *in German.* Through *BCIRA 36:* 131 (1956).

In the investigation into the wearability of Perlon textiles the author examined the causes of skin diseases, the behavior of Perlon to water, its affinity to fats and incrustations, changes in the water absorption on account of fiber damage, fat absorption of Perlon, changes in the physiological properties on treatment with potassium chromate, and the effect of Perlon on the human skin flora.

The effect of fabric structure on the frictional fusion of parachute materials.

V. Lavrakas (Lowell Technological Institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, August, 1955. 14 p. WADC Technical Report 54-570.

The parameters of fabric structure, yarn twist, calendering, and fabric weight have been found to be significant in the resistance of parachute cloth to friction.

Handbook of parachute textile materials and properties.

J. W. McCarty (Georgia Institute of Technology). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, February, 1956. 158 p. WADC Technical Report 55-264.

Fairly complete information is supplied on elongation, elastic recovery, energy absorption, porosity and air permeability, strength properties, and temperature properties of numerous different textile yarns, cords, and fabrics. Some information is also supplied on ageing properties, basic design data, and impact loading.

Evaluation of fabric finishes for high temperature operation of parachute ribbons.

L. C. Block (Lowell Technilogical institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development

Center, November, 1955. 45 p. WADC Technical Report 54-571.

For evaluating the effect of surface finishes on the high temperature properties of nylon parachute ribbons, fabrics were exposed to temperatures above the melting point of nylon (480°F) produced by three modes of heat propagation: conduction, convection, and radiation. The results showed that no single finish satisfactorily retarded the fusion of the nylon ribbon when it was tested by all three methods. Instrumentation and testing programs are described.

Standard for the examination of finished goods.

National Federation of Textiles, Inc., 389 Fifth Avenue, New York 16, N. Y. 2 p. Nov. 1955.

These standards provide for visual examination as a basis for settling disputes over the quality of fabrics and explain the penalties to be assigned for imperfections for warp defects and conditions, and filling defects and conditions.

Deflected float method permits easier and better fabric designing.

E. L. Golec. *Modern Textiles Mag. 37:* 64, 66, 68, 70 (April, 1956).

With this method, fabric designers can indicate on design paper the influence of yarn characteristics. The deflected float method of designing forecasts the appearance of the woven fabric with great accuracy. A method of calculating the exact angle of twill lines in any twill fabric is also explained.

Synthetic fibers in surgery.

Skinner's Silk and Rayon Record 30: 398-399 (April, 1956).

Brief review of developments in surgical use of synthetic fibers.

Nylon, a valuable medical auxiliary.

V. Chevalier. *Rayonne et Fibres Synthet. 12, No. 1:* 127-135 (1956); *in French.* Through *BCIRA 36:* 197 (1956).

The increasing use of nylon in surgery is discussed; its complete harmlessness and lack of toxicity are proved by numerous investigations.

Metallized lining materials.

A. Harenslak. *Melliand Textilber. 37, No. 1:* 101-103 (1956); *in German.* Through *BCIRA 36:* 166 (1956).

Measurements of heat transmission, reflection of infra-red rays, and permeability to air of metallized fabrics showed that dyed textiles reflect heat rays to the same or even greater extent than a layer of aluminum powder. The heat transmission is the same in coated and uncoated lining materials, and the permeability to air is considerably impaired in coated fabrics. Thus, coating with metal powder does not improve the usage value of lining materials.

Nonwoven fabrics.

R. J. Spahr (Chicopee Manufacturing Corp.). *J. Chem. Educ. 33:* 184-187 (April, 1956).

Brief outline of the steps used in producing nonwoven fabrics, binders employed, properties obtainable and end uses.

FINISHING AND CHEMICAL PROCESSING D

Bleaching, dyeing and finishing.

A. J. Hall. *Textile Merc. Supplement 66:* 75-81 (March, 1956).

A review of technical developments during 1955.

Surface effects on nylon.

G. M. Richardson. *Modern Textiles Mag. 37:* 46, 48 (April, 1956).

This report deals specifically with surface effects achieved by phenol printing, hot roll embossing and calendering, and special finishes such as longitudinal random wrinkles, and filling-wise wrinkles obtained by passing fabric in open width through fulling type machines.

Whiteley Stenter incorporates the Vits patent drying system.

E. G. Whiteley Ltd. *Textile Merc. 134:* 471-472 (March 23, 1956).

This machine has proved successful for the treatment of synthetic fiber fabrics, as well as cottons. Due to the balanced air flow, the machine is considered suitable for resin finishes, Acramine and Helizarin colors and thermoplastic fibers. Photographs.

CHEMICAL PROCESSES D 1

Evaluation of antistatic agents on nylon parachute cloth.

J. W. Sweeney (Lowell Technological Institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, September, 1955. 64 p. WADC Technical Report 54-513.

A literature search covering instrumentation, antistatic agents, and theories of static electrification was conducted to provide a foundation for the evaluation of antistatic treated nylon parachute cloth. An appraisal of the techniques employed

by other investigators, in the evaluation of the static behavior of materials, justified the utilization of fabric surface resistance as the measurable parameter. Special instrumentation was developed to provide the desired test conditions of –30°F and 10% R. H. and permit the required range of resistance measurements. While no permanent antistatic agent studied was found to be effective at the low temperature test conditions, specific nonpermanent agents gave the treated material a surface resistance at the test conditions which was comparable to the resistance of untreated nylon fabric at standard test conditions of 70°F and 65% R.H.

Hydrogen peroxide and its importance in washing white goods.

R. Weber. *Textil- u. Faserstofftech. 5, No. 12:* 675-678 (1955); *in German.* Through *BCIRA 36:* 167 (1956).

In this review, the author discusses the technical preparation and properties of hydrogen peroxide, its use as bleaching agent in washing white articles, the use of peroxide-containing bleaching agents in machine laundering, and the addition of peroxide-liberating compounds to household detergents.

Innovations in continuous open-width boiling-off installations.

R. Vogel. *Melliand Textilber. 36, No. 12:* 1281-1283 (1955); *in German.* Through *BCIRA 36:* 119 (1956).

A description is given of the open-width machine for boiling off, desizing, and bleaching of fabrics (especially silk, rayon and cotton), developed by Gerber GmbH, Krefeld, with reference to the construction of the individual components.

A contribution to the behavior, with chlorine-liberating bleaching agents, of fabrics impregnated with heat-setting resins.

H. A. Wannow. *Textil-Praxis 10, No. 12:* 1248-1252 (1955); *in German.* Through *BCIRA 36:* 125 (1956).

Textiles treated with nitrogen-containing hardenable resins, when bleached with chlorine-liberating agents, bind the chlorine in the form of chloramine compounds. It was found that melamine resins (in contrast to resins from dimethylol-urea) cause yellowing and tendering of the fiber dependent upon the type of catalyst used for hardening the resin. Good results are obtained with zinc chloride and magnesium chloride as catalysts.

Finishing with melamine resins.

J. Muller and F. Liewald. *Z. ges. Textil-Ind. 58, No. 1:* 25-29 (1956); *in German.* Through *BCIRA 36:* 158 (1956).

Methods of using the methylol melamines Cassurit MKF (concentrated powder) and MLP (liquid) are described in detail, with special reference to the production of permanent calender effects (silk finish, chintz, special embossing) on cotton and spun rayon fabrics. Crease-resistant finishes on fabrics from natural and regenerated celluloses and wash-fast finishes on synthetic fibers, in combination with stiffening effects for the manufacture of petticoats, are also discussed.

Anticrease finishes.

G. Bouvier. *Industrie Textile:* 765-772 (October, 1955); 858-861 (November, 1955); 942-946 (December, 1955); *in French.* Through *BCIRA 36:* 158 (1956).

In this review, the author discusses crease-resist finishes on cellulosic fabrics with hydantoin and its derivatives, epichlorhydrin (or substances liberating it), formaldehyde condensation products, and minerals; the response of cellulosic fibers to the treatments; experiments to render cotton similar to viscose rayon; the differences in the physical state of cellulosic fibers; the effects of squeezing (to remove excess of resin) and of mercerization; the importance and role of pH; the evaluation of crease-proofed fabrics and methods of measurement (the Monsanto apparatus for testing de-creasing, the method of Quehl and Siegel for measuring the crease angle, detection of internal or external resin deposition, qualitative and quantitative resin determinations in the fabrics, and indentification of nitrated resins on the fiber). Reference is made to the relevant publications and patents.

Crease-resistant finishes.

J. C. Sanchez. *Ingen. Text. 22, No. 116:* 427-434 (1955); *in Spanish.* Through *BCIRA 36:* 124 (1956).

Factors which are directly related to the elasticity of fibers and those having a direct effect on the formation and retention of wrinkles are discussed, with reference to the molecular structure, agents modifying the molecular structure, and external appearance of the fibers. Effects of spinning, weaving, dyeing, and finishing are reviewed.

Method to improve wash-wear performance of cotton believed close.

C. R. Williams and S. H. Foster. *Am. Textile Reptr. 70:* 55, 57, 61 (April 19, 1956).

Discussion of the progress and prospects for better fabrics treated to resist wrinkling.

Inhibition of gas fading in colored acetate goods.

A. J. Hall. *Fibres 17:* 108-111 (April, 1956).

Recent research in the production of gas fading inhibitors is reviewed.

A new process for compacting textile materials.

Riggs and Lombard, Inc. *Am. Textile Reptr. 70:* 9, 23-25 (April 26, 1956).

Test results on cotton fabrics, wool and wool blends, synthetic blends and miscellaneous fabrics are tabulated.

New finishes make improved rayon performance possible.

J. A. Woodruff (American Viscose Corp.). *Am. Textile Reptr. 70:* 41, 43, 45 (April 19, 1956.)

Durability of chemical finish is largely a matter of proper chemical selection and application. A series of trials on shrinkage control is described.

Relative efficiency of chelating agents.

A. C. Signore, G. M. Gantz and M. E. Chiddix. *Am. Dyestuff Reptr. 45:* P217-P222 (April 9, 1956).

This paper describes a number of experimental methods for determining the relative efficiency of chelating agents in specific textile processes. Control of calcium, copper, and iron by either quantitative or qualitative procedures is discussed. A balanced chelating agent is described which is effective in a wide variety of textile processing operations. 8 references.

Waterproofing in the finishing laboratory.

R. Gunther. *Z. ges. Textil-Ind. 57, Nos. 22-23:* 1505-1512; *No. 24:* 1594-1596 (1955); *in German.* Through *BCIRA 36:* 125 (1956).

Forty compositions and brief directions are given for waterproofing of textiles with fat-wax mixtures, aluminum salts (two-bath method with and without intermediate drying), commercial preparations (Praedigan, Nitrol, Cerol T, Ramasit. Contragua, Impraegnol, etc.), rubber, acrylic resins, polyvinyl chloride, Impranil (transparent coatings), and linseed oil. Brief reference is also made to the preparation of oil skins and the application of cuprammonium.

DYEING AND PRINTING D 2

New findings and experiences during dyeing of synthetic fibers.

A. Wurz. *Melliand Textilber. 37, No. 1:* 83-90 (1956); *in German.* Through *BCIRA 36:* 156 (1956).

In this review, the author discusses the dyeing of fibers from polyamide, polyacrylonitrile, polyvinyl chloride and polyvinyl alcohol, mixed polymerizates of acrylonitrile and vinyl chloride, and polyester fibers, reference being made to recent publications on this subject. 33 references.

General principles of dyeing polyacrylonitrile and polyester fibers.

H. G. Frohlich. *Z. ges. Textil-Ind. 58, No. 2:* 56-61 (1956); *in German.* Through *BCIRA 36:* 190 (1956).

This is a review with 27 literature references.

Progress in dyeing of synthetic fibers.

H. Stern. *Rev. Textilis 12, No. 1:* 33-40 (1956); *in French.* Through *BCIRA 36:* 190 (1956).

In this review, the author deals especially with Terylene (Dacron, Tergal, etc.), Orlon (Crylor, etc.) and nylon fibers, their characteristics, and suitable dyes for these fibers.

Dyeing of the newer man-made fibers.

P. J. Choquette (General Aniline and Film Corp.). *Can. Textile J. 73:* 51-55 (April 6, 1956).

Paper discusses high temperature dyeing and provides data on chemical auxiliaries and special methods of application. Also covered are latest developments in the dyeing of man-made fibers, including polyvinyl alcohol fiber.

Some recent developments in dyeing and printing various textile materials.

B. C. M. Dorset. *Textile Mfr. 82:* 199-202, 207 (April, 1956).

Six British patents covering the production of brighter wool dyeings, dye-resistant wool, increasing the fastness of dyed cellulose fibers, resin binders, printing with azoic dyes, and improving the dyeing properties of glass fibers are discussed in detail.

The water-repellency of dyed rayon staple fibers.

K. F. Neuendorff. *Textil- u. Faserstofftech. 5, No. 12:* 673-674 (1955); *in German.* Through *BCIRA 36:* 156 (1956).

Causes of the hydrophobic properties and difficulties encountered during processing (electrostatic charges) of Merinova and Vistra fibers were investigated by carrying out wetting tests on the raw and dyed fibers. It was found that the worst results were obtained with brown dyes (both in sulfur and substantive dyeings). The use of a suitable brightening agent is of great importance, but the required addition must be accurately controlled to obtain uniform brightening and to restore the wettability and softness of the fibers.

Diffusion measurements on polyamide fibers.

W. Luck. *Melliand Textilber. 36, No. 12:* 1267-1270 (1955); *in German.* Through *BCIRA 36:* 121 (1956).

In continuation of a previous article the author discusses the factors affecting the penetration depth (temperature, degree of stretching, pH, compatibility of the dyes) and briefly outlines the optical conditions for determining the penetration constants.

Contribution to the dyeing of superpolyamides in the mass.

L. Le Thierry d'Ennequin. *Teintex 20, No. 11:* 879-885 (1955); *in French.* Through *BCIRA 36:* 121 (1956).

Dyes prepared by condensation of di- or tetra-acids with di- or tetra-amines are listed in a table. These dyes were used for dyeing Rilsan and nylon in the mass and the method is described.

The use of carriers during dyeing of polyester fibers.

G. Dierkes and G. Romer. *Melliand Textilber. 36, No. 11:* 1170-1174; *No. 12:* 1271-1275 (1955); *in German.* Through *BCIRA 36:* 121 (1956).

The carrier activity of phenols, phenol ethers, alcohols, ketones and amines was examined by dyeing Terylene spun fiber yarn under identical conditions with 3% Cellitone Fast Blue B at a dye liquor ratio 1:40. It was found that there is a difference between hydrophilic and hydrophobic carriers. Experiments are described in which an attempt was made to improve the properties of hydrophobic carriers by using emulsifiers and carrier combinations and testing the behavior of other Cellitone dyes (disperse dyes). Reference is also made to the diammonium phosphate process.

The dyeing of Dynel at elevated temperatures.

W. W. Rankin and T. H. Newman (Carbide and Carbon Chemicals Co.). *Am. Dyestuff Reptr. 45:* 213-214 (April 9, 1956).

Dynel is successfully dyed under pressure at temperatures up to a maximum of 220°F with a wide range of acetate, acid and premetallized colors. Few special problems are involved and shades with excellent fastness properties are obtained with considerable savings in dyestuff cost and dyeing time.

Dyeing of man-made fibers.

N. Carnichael (Du Pont Co. of Canada Ltd). *Can. Textile J. 72:* 50-53 (April 20, 1956).

Author briefly discusses conditions under which Nylon 66 and Perlon are dyed. Under the same conditions most dyes dye Perlon more rapidly than nylon. Dye classes applied in any quantity to nylon are enumerated. Newer fibers and blends are also discussed.

The dyeing of wool and nylon blends.

H. Luttringhaus (Progressive Color and Chemical Co., Inc.). *Can Textile J. 72:* 45-49 (April 20, 1956).

Discussion of the use of acid, chrome and metallized dyes, as well as Ofna-perl salts and Ofna-lans for dyeing blends of wool with Nylon 66 and Perlon.

Effect of dye structure on the dyeing of Orlon 42-azo dyes.

A. J. Pelletier. *Am. Dyestuff Reptr. 45:* P227-P230 (April 9, 1956).

From a study of the structure of mono-azo and dis-azo dyes used on Orlon 42 it is concluded that: increases in molecular weight increase the dye affinity in acid dyebath but not in salt; sulfonic acid groups prevent dye absorption in the mono-azo dyes; with dis-azo dyes, as the number of sulfonic acid groups is increased from one, the salt dyebath exhaustion decreases towards zero, and the acid dyebath decreases to a variable degree depending on the dye; amines present in a dye molecule either alone or in excess of sulfonic acid groups will facilitate the dyeing of Orlon 42.

The effect of organic solvents on the absorption of dyes by wool from aqueous solutions at low temperatures.

C. B. Stevens and L. Peters (University of Leeds). *(Letter to the editor). J. Soc. Dyers Colourists 72:* 100 (March, 1956).

The present use of dye extracts in the textile industry. Part 1.

G. Parsy. *Teintex 20, No. 11:* 859-877 (1955); *in French.* Through *BCIRA 36:* 120 (1956).

In this paper, the author discusses the preparation of dye extracts in general and classification of the products, the characteristics of logwood extracts and of natural dyes, methods of control and equivalents of various extracts, mordanting and dyeing methods in relation to fastness and bath exhaustion, the advantages and disadvantages of logwood dyeings, and working conditions and methods of application. Several examples of industrial applications are given with special reference to black dyes for wool, nylon, cellulose acetate, and some fiber blends.

The present use of dye extracts in the textile industry. Part 2.

G. Parsy. *Teintex 20, No. 12:* 951-972 (1955); *in French.* Through *BCIRA 36:* 155 (1956).

The author discusses the advantages and disadvantages of black logwood dyeings on wool, nylon and cellulose acetate, and the conditions for obtaining fast dyeings. Practical examples are given, together with dye formulations and methods of application.

The rationalization of job dyeing.

H. Andre. *Textil-Praxis 11, No. 1:* 71-75 (1956); *in German.* Through *BCIRA 36:* 189 (1956).

Various measures for simplifying, facilitating and accelerating production and for plant maintenance, with the object of production and repair costs, are discussed, with reference to the modernization of an old-fashioned dyeing plant.

The use of acid and metachrome dyes for dyeing Perlon staple fibers.

G. Puhlmann. *Textil- u. Faserstofftech. 5, No. 12:* 668-673 (1955); *in German.* Through *BCIRA 36:* 156 (1956).

Data on the affinity of acid dyes and metachrome dyes for Perlon staple fibers are presented in the form of substantivity, pH, temperature, and time curves for each dye. With the exception of the pH curve, all values for acid dyes refer to dyeings made with the addition of 3% acetic acid (30%). The optimum dyeing temperatures range from 70-100°C for acid, and from 60-100°C for metachrome dyes. The method of dyeing Perlon with metachrome dyes is briefly described.

Effect of penetration on reflectance of dyed textile fibers.

D. A. Garrett and R. H. Peters. *J. Textile Inst. 47:* T166-T178 (March, 1956).

The absorption and scatter coefficients, K and S, have been determined on the assumption that fibers of circular cross-section represent the absorbing and scattering elements through which the principal paths of light can be traced. It is shown that the ratio K/S is a function of fiber diameter, dye concentration and extinction coefficient, and the predicted relation is compared with that determined experimentally. The agreement is found to be such as to justify the extension of the theoretical model to a study of the effect of fiber penetration on reflectance of dyed fibers. An increase in penetration from 10% to 100% is shown to have the same effect on reflectance as a 33% increase in dye concentration.

Wool dyeing: effect of dye and acid valence.

J. B. Levy. *Am. Dyestuff Reptr. 45:* P223-P226 (April 9, 1956).

When wool is dyed with acid dyes, it is expected that the rate of dyeing will be affected by the valence of the dye and of the acid used in the dyeing process. The results obtained agree closely with predictions made from theory. 11 references.

Metallizable and metallized dyes continuously enrich the modern dyeing technique.

C. H. Fischer-Bobsien. *Z. ges. Textil-Ind. 57, Nos. 22-23:* 1521-1531 (1955); *in German.* Through *BCIRA 36:* 191 (1956).

In continuation of previous articles the author discusses dyes and dye pigments of the phthalocyanine/metal complex-type, with reference to metallizable phthalocyanines produced on the fiber and commercially available phthalocyanine/metal complexes. Pre-metallized dyes (other than phthalocyanines) with affinity for cellulose and protein fibers are also reviewed. 38 references.

Phenomena during reduction of vat dyes.

A. Schaeffer. *Melliand Textilber. 36, No. 10:* 1033-1036; *No. 11:* 1139-1143; *No. 12:* 1275-1281 (1955); *in German.* Through *BCIRA 36:* 122 (1956).

The changes observed in leuco vat dyes and their causes are reviewed. Brief reference is also made to the dispersity of leuco compounds in dependence of the dye concentration, alkali concentration, redox potential, presence of organic and inorganic compounds, temperature, and period of vatting.

Effect of acids, alkalis, and salts on the color of blue anthraquinone acid dyes.

R. H. Peters and H. H. Sumner (Imperial Chemical Industries, Ltd.) *J. Soc. Dyers Colourists 72:* 77-86 (March, 1956).

Certain blue anthraquinone acid dyes show color changes when the dyed material is treated with acid, alkali or salt. For eight dyes, these properties have been correlated with the changes which occur when these reagents are added to solutions of the dyes in water. Tables. Graphs. 8 references.

The spectral regions of daylight which cause fading.

K. McLaren (Imperial Chemical Industries, Ltd). *J. Soc. Dyers Colourists 72:* 86-99 (March, 1956).

To enable the importance of spectral composition to be put in its proper perspective, an in-

vestigation was undertaken into the regions of daylight which cause fading of dyes. A selection was made from the commercially available dyes varying the hue, dyeing type, chemical class, and substrate as widely as possible. It was found that organic coloring matters are faded by absorbed ultraviolet and visible radiation up to a critical wavelength, above which radiation is non-actinic even if strongly absorbed. This wavelength is generally related to the normal lightfastness of the coloring matter, "normal" referring to the substrate for which it was originally developed, e.g. vat dyes on cotton, disperse dyes on acetate rayon. The differences between the composition of actinic radiation constituting daylight and that emitted by the enclosed carbon arc have been shown to be relatively unimportant as a possible source of gross anomalies in lightfastness testing based on comparison with lightfastness standards. Tables. Graphs. 7 references.

White spots on nylon hosiery in the hosiery dye house.

H. White (Lee Hosiery Finishers, Inc.). *Hosiery Underwear Rev. 39:* 93-94 (May, 1956).

Improper presetting in the Dunn system is cited as the primary cause of this defect.

Innovations in textile printing.

H. Bartl. *Melliand Textilber. 36, No. 12:* 1283-1287 (1955); *in German.* Through *BCIRA 36:* 123 (1956).

Developments in pigment printing are reviewed, with special reference to the flash-ageing, the Monofast, and the star printing methods (similar to the three-dimensional Dynascope process).

Fifty years of hydrosulfite and Rongalite (R).

A. Janson. *Melliand Textilber. 37, No. 1:* 98-100 (1956); *in German.* Through *BCIRA 36:* 157 (1956).

The history of hydrosulfite and of Rongalite is outlined and it is shown that all commercially available reducing agents for vat-dyeing and printing are derivatives of sulfoxylic acid.

Developing with Rongalite in the two-phase printing process for vat dyes.

G. Bernardy and W. Kuppers. *Textil-Praxis 10, No. 12:* 1255-1265 (1955); *in German.* Through *BCIRA 36:* 123 (1956).

Composition of the developing baths and chemical and physical processes taking place are discussed, and reference is made to the equipment required and factors affecting the continuous developing of the prints during padding, aeration and steaming.

Hydrosulfite developing in the two-phase printing process for vat dyes. Further potential uses of this method.

G. Bernardy and W. Kuppers. *Textil-Praxis 11, No. 1:* 63-71 (1956); *in German.* Through *BCIRA 36:* 191 (1956).

In supplementation of previous articles the author describes the developing of prints by impregnating them with alkaline hydrosulfite solution, using (a) the slop-pad method in which the printed and dried material is padded with the solution, squeezed and steamed without intermediate drying, or (b) the new du Pont vat-printing/developing method, in which the printed material is simultaneously padded with a thickened hydrosulfite solution. The engraved roller runs through this solution, the surplus of which is removed by means of a doctor provided for this purpose. The wet prints are steamed immediately. The physical and chemical processes taking place during the hydrosulfite developing method and the applicability of the two-phase printing process for producing light grounds, and half-tone, white, and colored resists are discussed..

Notes on dye constitution and dischargeability. A contribution to the problem of the deepening of tints in white discharges on polyamide fabrics.

B. Kramer. *Melliand Textilber. 36, No. 12:* 1295-1300 (1955); *in German.* Summary in *BCIRA 36:* 123 (1956).

Fewer diapositives in the production of screen print stencils.

R. Kunzel. *Textil-Praxis 10, No. 12:* 1266-1267 (1955); *in German.* Through *BCIRA 36:* 123 (1956).

A method is described by means of which it is possible to effect considerable savings of time and diapositive material in the production of multi-colored patterns.

Economic addition printing for screen printing stencils.

R. Kunzel. *Textil-Praxis 11, No. 1:* 61-63 (1956); *in German.* Through *BCIRA 36:* 192 (1956).

The advantages of the process described include: reduction of the working time by about 50%, saving of diapositive material, and increased precision.

The development of Neutrogen dyes and their use in calico printing.

H. Schulzen. *Z. ges. Textil-Ind. 58, No. 1:* 30-34 (1956); *in German.* Through *BCIRA 36:* 157 (1956).

The essential characteristics of the Neutrogen

group of dyes and their potential applicability and limitations in roller and screen printing are discussed. The problem of neutral steaming has been solved by the discovery of especially suitable stabilizers. By steaming for 5-7 minutes at 100-102°C, the diazonium compound decomposes and the diazo compound formed combines with the naphthol. The wet- and rubbing fastnesses of the dyeings can be improved by after-treatment with condensed phosphates (Calgon T).

Discharging of vat dyeings.

B. Kramer. *Z. ges. Textil-Ind. 57, No. 24:* 1588-1591 (1955); *in German.* Through *BCIRA 36:* 123 (1956).

A survey is made of the present state of discharge printing on vat dyeings, with special reference to Indanthrene dyes. 18 references.

Special problems encountered in vat dye printing.

A. Garscha. *Melliand Textilber. 37, No. 1:* 91-93 (1956); *in German.* Through *BCIRA 36:* 157 (1956).

Compositions of vat-printing pastes and properties of thickeners are discussed, with reference to the Votator boiler of the Girdler Corp., from which the thickener is obtained with constant viscosity. Various thickeners are reviewed, and dark effects printed on vat dyeings, after-thickening of printing pastes, covering of printing rollers, after-treatment of discharge prints before steaming, the steaming process itself, and properties of vat dyes are briefly discussed.

Utilization of tamarind seed pectin in textile industries. Part 3. Potentialities of pectin in printing.

G. R. Savur. *Indian Textile J. 66:* 309-311 (February, 1956).

Pure tamarind seed pectin can be used alone in the printing of certain indigosol, vat dyestuffs and naphthol colors. In cases where precipitation occurs a mixture of tamarind pectin and gum tragacanth can be used.

Engraving techniques in calico printing.

H. Jakob. *Reyon Zellwolle Chemiefasern No. 10:* 712-713; *No. 11:* 768-770; *No. 12:* 846-849 (1955); *in German.* Through *BCIRA 36:* 157 (1956).

In this review, the author discusses hand-engraving, etching of printing rollers, the preparation of small steel rollers by means of which the pattern is transferred on to the printing rollers, and the principles of pantograph- and photo-engraving. Photographs are given of the respective machines.

DRYING D 4

Capillary dehydration of textiles.

K. Messik, T. Bonkalo and K. Szabo. *Textil-Praxis 11, No. 1:* 78-80 (1956); *in German.* Through *BCIRA 36:* 193 (1956).

A method for removing water from fabrics is described, which is based on the utilization of the capillary sucking action of dry cloth. In this way, the water content can be decreased by about 45%, at a correspondingly reduced heat consumption and drying time. The mechanically dried material is placed, together with a layer of dry cloth, in a J-shaped tower for half an hour and then separately taken up by means of folding devices, without damage to either of the fabrics.

A theory of drying of sheet materials by using heated cylinders.

A. H. Nissan (Leeds Univ.). *Chemistry and Industry No. 13:* 198-211 (April 7, 1956).

Equations are developed and their use as an analytical tool for diagnosing drying characteristics and weaknesses of a typical commercial machine under normal practical conditions is explained. 10 references.

Effects of the vapor content in the drying medium on the behavior of textiles during drying.

M. Windhorst. *Rev. Textile 54, No. 9:* 447-453 (1955); *in French.* Through *BCIRA 36:* 193 (1956).

Drying by hot air, by steam with an average vapor content and by superheated steam, respectively, is discussed and results are compared. It is shown that drying in a medium with average or high vapor content prevents excessive drying and its effects on the physical and chemical properties of the material are discussed. The necessity of controlling the vapor content of the drying medium is pointed out.

Drying of rayon staple on the revolving screen principle, with special reference to the use of high drying temperatures.

O. Pfeiffer. *Reyon Zellwolle Chemiefasern No. 12:* 824-829 (1955); *in German.* Through *BCIRA 36:* 159 (1956).

The drying method previously used for drying carded and combed slivers and dyed cotton flock has been applied to rayon staple. The drying process is based on the use of turbo-fans for producing high air velocity and aspirating the wet web on revolving drums, in the center of which is a vacuum of about 50 mm water column. The effects of high drying temperatures (above 100°C) on the fiber properties and their further

processing, and on the surface structure of the fibers, are discussed. The described drying system can be also used at low temperature ranges.

Application of superheated-vapor atmospheres to drying.

A. M. Lane and S. Stern. *Mech. Eng. 78:* 423-426 (May, 1956).

The theory of superheated vapor drying is discussed, it advantages cited and schemes of operation presented.

TESTING AND MEASUREMENT E

Testing of textiles. Sampling and general directions.

German Standards Committee. *Melliand Textilber. 37, No. 1:* 107-110 (1956); *in German.* Through *BCIRA 36:* 162 (1956).

The draft specification DIN 53 803 lays down the conditions for the removal of samples for determining the commercial weight of rayon staple, and for sampling of single fibers, yarns and fabrics, with reference to the statistical evaluation of the test results.

Measurement of strength of fibers and yarns.

Wool Sci. Rev. No. 15: 26-38 (March, 1956).

The article discusses the principles and operations of instruments for determining breaking load in single fibers (Instron tester and Cambridge Extensometer) and in yarns (pendulum, Scott Inclined Plane and Instron testers, Cook and Uster automatic testers); the relationship between breaking load and specimen length and strand number; and the use of the constant tension winding test. Graphs. Diagrams. Photographs. 7 references.

Research by the numbers.

G. E. P. Box (Imperial Chemical Industries). *Chem. Week 78:* 56 (March 31, 1956).

A brief report on new statistical methods of optimization, using response surfaces in experimental work and research. With a relatively small number of tests and experiments, important information on a number of variables is obtained.

The use of counters in the textile industry.

V. Luzet. *Rayonne et Fibres Synthet. 12, No. 1:* 15-23 (1956); *in French.* Through *BCIRA 36:* 199 (1956).

Devices for counting the number of machine revolutions per time unit, measuring the length of fabrics, yarn, etc., and counting the number of stitches (in hosiery) or the number of picks (on looms) are discussed.

Design and development of a heavy weight high impact shock machine.

E. N. Sabbagh and A. S. Quint (Lowell Technological Institute Research Foundation). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, November, 1955. 33 p. WADC Technical Report 54-573.

The construction and operation of a pneumatically driven impact tester designed to evaluate the dynamic performance characteristics of cushioning materials is described. The 577-pound flat impacting element is capable of being projected downward with a velocity of from 20 ft/second to over 50 ft/second. An analog computer is used in a new application to record and analyze the impact.

FIBERS E 1

Cotton quality and its assessment.

E. Lord. *J. Textile Inst. 47:* P184-P191 (March, 1956).

Reviews fiber testing methods, indicating some of their good points and some of their failings; how these fiber testing methods have been applied in cotton breeding, cotton classification and marketing and spinning; and future developments and applications.

Critical examination of cotton tests.

A. Wilhelm and F. W. Fleischle. *Melliand Textilber. 37, No. 1:* 8-14 (1956); *in German.* Through *BCIRA 36:* 163 (1956).

Various testing devices (the Pressley tester, Micronaire, Fibrograph, the Shirley analyzer) and testing methods (e.g. examination of the raw material in ultra-violet light) are discussed and examined as regards their suitability for evaluating the quality of the material.

The determination of contacts between the constituents of fiber assemblies.

D. S. Taylor. *J. Textile Inst. 47:* T141-T146 (March, 1956).

A radioactive tracer technique for determining the number of fiber-to-fiber contacts in twistless slivers is described. 5 references.

Theoretical study of the distribution of fiber length.

W. Wegener and E. C. Hoth. *Melliand Textilber. 36, No. 24:* 1219-1226 (1955); *in German.* Through *BCIRA 36:* 126 (1956).

The basic definitions of fiber-length measurements (number, single and total frequency, and their conversion into a constant equation) are explained and three methods of sampling, laws

governing the staple weight and the mean fiber length, and determination of the variation coefficient from the staple diagram are discussed.

Detection of density differences in cellulose fibers by the two-color staining method of Simons.

G. Jayme and M. Harders-Steinhauser. *Papier, Darmstadt 9, Nos. 21-22:* 507-510 (1955); *in German.* Summary in *BCIRA 36:* 126 (1956).

The behavior of flax, hemp and ramie fibers in cuprammonium.

H. Klenk. *Textil-Praxis 10, No. 12:* 1202-1204 (1955); *in German.* Through *BCIRA 36:* 127 (1956).

The main characteristics distinguishing flax, hemp and ramie fibers swollen in cuprammonium are shown on photomicrographs: flax has protoplasm filaments, hemp exhibits an agglomeration of finely-pleated center lamellae and ramie swells extensively in width, forming transverse longitudinal and diagonal fissures.

Microscope preparations of oriented fibers for statistical measurements in polarized light.

N. Iwanow and R. Schneider. *Bull. Inst. Textile France No. 56:* 45-50 (1955); *in French.* Through *BCIRA 36:* 163 (1956).

The method described by P. Larose for the parallelization of wool-fiber fragments for microscope preparations has been improved and applied to cotton fibers for determining their degree of maturity and to viscose fibers for their characterization by means of the differential dyeing test. The modified method consists in impregnating the fibers with sodium chloride and then subjecting them to a high-voltage electric field. The chain-alignment of the fiber fragments obtained in this way facilitates the statistical measurements in polarized light.

On the measurement of charge on individual fibers.

C. E. Mossman and E. Rideal. *Can. J. Chem. 34, No. 1:* 88-93 (1956). Through *BCIRA 36:* 196 (1956).

The charge on single Terylene fibers has been measured by observing the deflection of such a fiber suspended in aqueous solution and under the action of an applied electric field. The effect of varying the field strength and the concentration of the different solutions (distilled water, detergents, orange II dye) has been studied.

YARNS E 2

Determination of the frequency of neps, husks, and other impurities in yarns.

W. Burkhart. *Melliand Textilber. 37, No. 1:* 15-21 (1956); *in German.* Through *BCIRA 36:* 165 (1956).

The characteristic appearance of neps in the Uster diagram and the possibilities of evaluating the impulses caused by the neps (by (1) the integrator and (2) the spectrograph) are discussed, with special reference to the Hy-Lo Uster indicator. This device was developed as a supplementary device to the Uster irregularity tester; it utilizes the current differences, occurring during yarn testing and normally used for recording the diagram, for counting the number of neps.

Improvement of the twist test by a new testing method.

O. Lorcher. *Melliand Textilber. 36, No. 12:* 1217-1219 (1955); *in German.* Through *BCIRA 36:* 128 (1956).

In the new method described, a 50 cm test length is used and to the standard tension (standard weight) ten times the standard weight is carefully added to stretch the sample by a certain value (e.g. 4mm). The value obtained after twisting the stretched sample until the twist indicator reaches zero is noted and the sample is then untwisted again to zero. The difference between the two values corresponds to the twist number in double the test length (1 m). The method gives better results than the previous methods; comparative mean values from 20 individual tests are given in a table.

A rapid method for obtaining the variance-length curve by electronic means.

W. Masing. *Textil-Praxis 10, No. 12:* 1237-1239 (1955); *in German.* Through *BCIRA 36:* 129 (1956).

The apparatus described consists of the usual capacitive yarn regularity tester to which is connected a summation device containing two very accurately working electronic chronometers which can be separately and independently adjusted. The first determines the loading time of the summation condenser (i.e. the yarn length). After this time, a contact device disengages the condenser from the tester and connects it with the evaluation device which registers the summation tensions. Each tension impulse represents one condenser charge, i.e. the mean fiber mass per yarn length examined. The method is described.

Contribution to the paper on variance-length characteristics in spinning by W. Wegener and W. Zahn.

H. Locher. *Melliand Textilber. 37, No. 1:* 26-28 (1956); *in German.* Through *BCIRA 36:* 164 (1956).

Referring to the above paper the author criticizes it and points out the publication of P. Grosberg, in which a method for obtaining the variance-length curve of a yarn is described. This method makes it possible to determine the effcet of all preparatory processes on the yarn irregularity.

Conclusion to the paper on variance-length characteristics in spinning.

W. Wegener and W. Zahn. *Melliand Textilber. 37, No. 1:* 28-29 (1956); *in German.* Through *BCIRA 36:* 165 (1956).

This is a reply to the criticism of the paper by H. Locher pointing out the disadvantage of Grosberg's method which can be used only if the increase of irregularity during the preparatory processes is due to the statistical fiber distribution and not to the presence of long-wave interferences. On the basis of results obtained by means of various regularity testers and by the Uster integrator, the authors state that the determination of the variance-length curve by means of integrators may be regarded only as an approximate solution, as pointed out in the Uster directions.

The determination of the variance-length curve by means of the Uster regularity tester.

D. Hoffmann. *Industrie Textile.* 821-825 (November, 1955); *in French.* Through *BCIRA 36:* 129 (1956).

A brief theoretical outline is given and the determination of the variance-length curve by means of the Uster regularity tester is described and compared with the Grosberg and Palmer method. The difference between the two curves is insignificant so that, for practical purposes, the simplified method can be regarded as satisfactory.

The irregularity in the cross section of laps, slivers, rovings, and yarns during spinning of rayon staple.

H. Locher. *Reyon Zellwolle Chemiefasern No. 11:* 764-768; *No. 12:* 820-822 (1955); *in German.* Through *BCIRA 36:* 164 (1956).

The method of representing the irregularity of spun rayon by the variation coefficient CV and the irregularity factor K; the effect, on the yarn, of irregularity resulting from preparatory processes; and the effect of scutcher-lap irregularity are discussed and it is pointed out that, in order to be able to draw conclusions as to the efficiency of preparatory processes from measurements on the yarn, the determination of the variance-length curve is essential. The K-value is useful during all spinning stages, because the quality of the yarn depends upon the irregularity acquired during the preparatory processes. Analysis of the irregularity by means of the wavelength spectrum is described, with reference to the definition of the wavelength spectrum and its application range, course of the spectrogram for rayon staple, and relationship between the spectrogram and appearance of the finished fabric.

The international standardization of yarn counts.

K. Hentschel. *Melliand Textilber. 36, No. 12:* 1303-1305 (1955); *in German.* Through *BCIRA 36:* 128 (1956).

Development of the work on standardization of yarn counts is reviewed and two alternative tables are presented together with extracts from proposed conversion tables for cotton and woolen yarns.

Mixed yarns from wool and chemical fibers. Part 1. Determination of the wool constituent in mixed yarns from wool, viscose rayon staple and cuprammonium fibers.

H. Zahn and E. Kratzsch. *Melliand Textilber. 37, No. 1:* 75-80 (1956); *in German.* Through *BCIRA 36:* 165 (1956).

The most frequently used methods for determining wool in yarn mixtures with viscose and cuprammonium fibers are reviewed and the potassium hydroxide, sulfuric acid (Heermann) and aluminum chloride (Vietrel) methods are described in detail. The individual and mean values obtained by these methods for worsted yarns are tabulated, and the quadratic deviation s and variation coefficient v are calculated. The working conditions and accuracy of the potassium hydroxide and sulfuric acid methods are compared and the correction factors necessary for the two methods are given in graphs and tables. The potassium hydroxide method was found in all respects superior to the sulfuric acid method.

FABRICS E 3

Crease-proofed fabrics.

Ministry for Light Industry, HV Textil. *Textil- u. Faserstofftech. 5, No. 12:* 643 (1955); *in German.* Through *BCIRA 36:* 166 (1956).

This specification refers to the standardization of the crease-recovery angle, elongation at break,

residual shrinkage, formaldehyde content, and trimethylamine formation of crease-resistant fabrics from rayon and spun rayon, which are entitled to bear the Sylona label. The conditions and methods of testing are specified.

The use of immersion in oil in the analysis of streaks appearing on fabrics as a result of pigmentation differences in textile fibers (milky and dull fibers).

N. Iwanow and R. Schneider. *Bull. Inst. Textile France No. 56:* 39-43 (1955); *in French.* Through *BCIRA 36:* 166 (1956).

The streaks or defects in viscose rayon fabrics, due to differences in the pigmentation of the fibers (milky or dull fibers), can be made clearly visible and well defined by immersing the fabric sample in liquid paraffin; this treatment reduces the intensity of the light reflected by the fiber surface. The method is described.

The porosity of fabrics.

B. Dupon. *Industrie Textile.* 841-847 (November, 1955); *in French.* Through *BCIRA 36:* 130 (1956).

Methods and devices for measuring the porosity of fabrics are reviewed, and the difficulties in constructing an apparatus with graduations determined theoretically are pointed out. Different treatments (water-, flame-, rot- and shrink-proofing) considerably reduce the porosity of fabrics and it is not possible to predict the variations produced by the different treatments. Statistical evaluation of the results obtained by the differential Schmerber porosimeter and the Gurley permeometer shows a highly significant correlation and proves the good agreement between the values obtained by the two testers.

Development of fabrics with the same and different yarn counts in the thread systems.

H. Rotter. *Melliand Textilber. 37, No. 1:* 45-49 (1956); *in German.* Through *BCIRA 36:* 150 (1956).

It is shown that it is possible to calculate the normal, maximum and minimum fabric density from the weave and yarn count. A special slide rule, constructed on a nomographic basis, is described, by means of which maximum density of the fabric can be determined.

Here's how a flannel mill analyzes cloth samples.

G. Guggenheim. *Textile World 106:* 118-119 (April, 1956).

By the use of the analysis form shown and only the most rudimentary equipment, the information necessary to duplicate a sample can be determined.

Volumetric stretch tests: their value in hosiery knitting.

E. N. Ditton. *Modern Textiles Mag. 37:* 51-54 (April, 1956).

The Volumetric Stretch Test and Fit Test were developed in order to extend information on hosiery fit obtained with the Standard Stretch Test and the Stretch and Recovery Test. A multipurpose testing machine which makes it possible to combine in one operation Stretch Volumetric Stretch and Fit Testing is available on lease from the National Association of Hosiery Manufacturers.

Comparative exposure tests to daylight and artificial light.

A. Schaeffer. *Melliand Textilber. 37, No. 1:* 94-98 (1956); *in German.* Through *BCIRA 36:* 167 (1956).

Comparative tests were carried out on 171 dyeings (on cotton, viscose rayon, cuprammonium rayon, wool, silk, acetate rayon and on polyvinyl chloride, polyamide, polyacrylonitrile, and polyester fibers) by exposing them (1) to normal daylight (under glass), (2) the Fadeometer (Atlas Electric Devices Co.) and (3) the rapid exposure apparatus (Hoffmann). It was found that 30% of the results obtained with the Fadeometer differed by 1-2 fastness units from the corresponding values obtained by exposure to daylight. The negligible differences between the daylight exposures and the results obtained with the Hoffmann apparatus make the latter a suitable device for evaluating the lightfastness of dyeing. The tabulated results of the exposure tests are appended.

OTHER E 4

Determination of copper in textiles.

A. Mutschin. *Melliand Textilber. 37, No. 1:* 104-105 (1956); *in German.* Through *BCIRA 36:* 167 (1956).

The copper determination according to M. Kehren (*Melliand Textilber. 18:* 313 (1937)) is modified by digesting 10 sq. cm of the fabric with fuming nitric acid and concentrated sulfuric acid. The nitrous acid residue is removed by adding urea to the copper-containing solution diluted with distilled water and bringing it to the boil. If the copper is to be determined volumetrically, e.g. with Complexone III (Schwarzenbach method), it is advisable to separate the copper

electrolytically, as the presence of other metals may interfere in the titration with murexide as indicator. Any nitrite or nitrate present must also be carefully removed. Damp textiles must be dried before digestion.

Experiments on the standardization of testing methods for textile assistants. Part 9. A method for the evaluation of enzymatic desizing agents for starch-sized fabrics.

W. Julicher. *Melliand Textilber. 36, No. 12:* 1293-1294 (1955); *in German.* Summary in *BCIRA 36:* 119 (1956).

A suggested method of testing detergents for on-location rug cleaning.

J. W. Rice. *ASTM Bull. No. 213:* 59-61 (April, 1956).

The method consists of comparing the reflectance recovery of a number of swatches cleaned to an arbitrarily chosen performance standard using a small laboratory model of a conventional type professional cleaning machine. Some of the problems of performance testing are discussed, as well.

Lightfastness testing.

Quarzlampen Gesellschaft GmbH. *Textile Wkly. 56:* 882-884 (March 30, 1956).

The principal advantages of the Xenotest lamp are that the conditions are practically equal to sunlight and it gives the shortest possible testing time.

INDUSTRIAL ENGINEERING F

Principles of automation in the textile industry.

H. Helbig. *Melliand Textilber. 37, No. 1:* 1-3 (1956); *in German.* Through *BCIRA 36:* 167 (1956).

General and special installations for automatic control are discussed, with reference to the necessary modernization of textile mills.

Comparison of all-day time study with work sampling by use of analysis of variance.

L. J. Cote and B. J. Scott. (Purdue University). *J. Industrial Eng. 7:* 31-34 (January-February, 1956).

A comparison of the means and standard deviations for all functions indicated that the work sampling plan was better than the all-day time study for estimating the work performed. Work sampling produced as accurate an estimate, yet only one-half the amount of time was spent on collection of data.

Cost accounting in the hosiery industry.

A. Kershaw. *Textile Recorder 73:* 49-51 (April, 1956).

The application of costing accountancy techniques to the problems of the hosiery industry in which there is a large number of small firms and a wide diversity of end products.

Some aspects of cost calculation in the textile industry.

R. Elste. *Melliand Textilber. 36, No. 12:* 1309-1314 (1955); *in German.* Through *BCIRA 36:* 139 (1956).

Productivity and rationalization. Suggestions and tendencies.

P. Kronenberger. *Reyon Zellwolle Chemiefasern No. 11:* 742-743; *No. 12:* 810-811 (1955); *in German.* Through *BCIRA 36:* 173 (1956).

Problems associated with the increase in productivity and rationalization in the textile industry are discussed.

Textile productivity and human problems.

A. Harrer. *Industrie Textile:* 881-887 (December, 1955); *in French.* Through *BCIRA 36:* 173 (1956).

Human factors that affect productivity in the textile industry are studied, with reference to the relations between employers and workers in various countries.

MACHINERY AND MAINTENANCE F 1

Electronic controls on variable speed range drives.

C. E. Robinson and R. J. Farrell. *Modern Textiles Mag. 37:* 58, 60, 72, 87, 89, 93, 95-96 (February, 1956).

Electronic controls increase the efficiency of variable speed drives in textile plants. A general report on how these devices work is presented.

How to choose and use a lift truck.

Textile Ind. 120: 124-129 (March, 1956).

The illumination of jacquard looms.

E. Rebske. *Melliand Textilber. 36, No. 10:* 1006-1007 (1955); *in German.* Through *BCIRA 35:* 816 (1955).

Modern jacquard weaving rooms with combined general and local lighting installations are described and illustrated.

The textile mill fire problem.

Am. Textile Reptr. 70: 12-15, 41-42 (March 1, 1956).

Fire hazards and fire prevention methods are discussed. A table summarizing textile mill fire protection, suggested by the Factory Mutual Insurance Co., is included.

Suction systems on textile machinery.

H. Hocutt (Pneumafil Corp.). *Can. Textile J. 73:* 58-61 (February 10, 1956).

The author discusses the application of Pneumafil systems to spinning equipment, and Pneumastop equipment for roving frames.

Some power transmission practices in American textile mills.

F. A. Westbrook. *Textile Mfr. 82:* 81-83 (February, 1956).

Selection and maintenance of transmission belting.

R. V. Smith (E. B. Eddy Co.). *Paper Trade J. 140:* 32-36 (April 16, 1956).

A review of the requirements of efficient belt drives; characteristics and properties of different belting materials; care and maintenance of drive belts; and various types of belts available.

Drives in the textile industry.

C. Wohlfahrth. *Reyon Zellwolle Chemiefasern No. 11:* 758-761; *No. 12:* 814-817 (1955); *in German.* Through *BCIRA 36:* 168 (1956).

Drives for preparatory machines for spinning and weaving, for looms and knitting machines, and for finishing and dyeing installations are reviewed to show the advantages of suitable and efficient constructions.

Rational conveyance in the textile industry by means of horizontal lift conveyors.

H. Muller. *Melliand Textilber. 37, No. 1:* 117-118 (1956); *in German.* Through *BCIRA 36:* 168 (1956).

Selecting and applying electrical measuring instruments in textile mill maintenance.

R. S. White (Universal Winding Co.). *Knitter 20:* 44-47 (April, 1956).

Guide to the selection of adequate instrumentation for successful trouble shooting in textile operations.

Overlapping of machine breakdowns.

K. Hahn. *Textil- u. Faserstofftech. 5, No. 12:* 641-643 (1955); *in German.* Through *BCIRA 36:* 174 (1956).

It is pointed out that, in the preparation of standard specifications, the overlapping times of machine breakdowns (when one operator attends to several machines) must be taken into account. Equations are given for calculating the breakdown probability and the overlapping factor, and a table shows the mean overlapping percentages for a winding machine in dependence of percentage work load.

WASTE DISPOSAL F 2

Synthetic detergents and the B. O. D. test.

W. D. Sheets and G. W. Malaney. *Sewage and Ind. Wastes 28:* 10-17 (January, 1956).

This paper is a report of studies on the influence of selected synthetic detergents, surface-active agents, and detergent builders on the standard dilution B.O.D. test. 5 references.

Biological treatment of mixtures of textile wastes and domestic sewage.

R. H. Souther and T. A. Alspaugh (Cone Mills Corp.). *Sewage and Ind. Wastes 28:* 166-176 (February, 1956).

This paper reports results obtained in a pilot plant study of the treatment of textile waste mixture through two stage high-rate trickling filters and activated sludge; plus a comparison of the one stage and two stage high-rate filtration and activated sludge results. Biological treatment of domestic sewage-alkaline textile waste mixtures is shown to be practical without use of chemical pretreatment. Waste mixtures with a pH as high as 11.5, a phenolphthalein alkalinity of 562 p.p.m., and a B.O.D. of 558 p.p.m. can be treated through high rate filtration and activated sludge units with a total B.O.D. removal in excess of 90% through all units. 14 references.

Reducing textile waste problems using starch substitutes.

J. A. McCarthy. *Sewage and Ind. Wastes 28:* 334-336 (March, 1956).

In many cases, the use of a substitute for some or all of the starch used in textile plants gives a sufficient reduction in B.O.D load to justify its use.

QUALITY CONTROL F 3

Modern statistical control.

H. Lustig, J. Pfanzagl, and L. Schmetterer. Osterreichische Statistische Gesellschaft, Vienna. 1955. 81 p. *In German.*

A concise, simple and complete presentation of: inspection by variables, defects-per-unit and percent defective; control charts; sampling plans. References to German language publications are given.

OTHER F 4

Heat economy in textile finishing.

W. Simon. *Melliand Textilber. 37, No. 1:* 111-115 (1956); *in German.* Through *BCIRA 36:* 168 (1956).

Requirements of the total installations (heat-power coupling, use of steam and condensate in closed circulation), and the main causes of defects and failures (imperfections in the heat-consuming devices, unsuitable discharge of the condensate, deaeration difficulties), and proposals for their elimination are discussed, with reference to the steam consumption in spinning, weaving, bleaching and dyeing plants.

Lighting in the textile industry. Its effect on productivity.

J. Filleux. *Rev. Textile 54, No. 10:* 558-560 (1955); *in French.* Through *BCIRA 36:* 199 (1956).

The author discusses factors affecting lighting efficiency in the textile industry (level of the lighting installations, distribution of light sources, elimination of dazzling light, and effect of painted surfaces), and briefly mentions replacement of incandescent by fluorescent lamps.

Notes on new boiler plants and their feed water and condensate economy.

F. Wilkens. *Textil-Praxis 11, No. 1:* 81-84 (1956); *in German.* Through *BCIRA 36:* 199 (1956).

SCIENCES G

CHEMISTRY G 1

Acid hydrolysis of cellulose.

E. H. Daruwalla and G. M. Nabar (Univ. of Bombay). (Letter to the editor). *J. Polymer Sci. 20:* 205-208 (April, 1956).

The characteristics of acid-modified celluloses produced under mild conditions of acid hydrolysis were studied. Experimental results of the present work indicate that the gradual action of acids gives rise to a progressively less accessible fine structure. 15 references.

Methanolysis and hydrolysis of cotton cellulose III.

M. L. Nelson, L. Segal, T. Mares and J. J. Creely (Southern Regional Research Laboratory). *J. Polymer Sci. 20:* 29-36 (April, 1956).

Well-decrystallized cotton yarn, the remaining organized regions of which consisted predominantly of crystalline cellulose III, was subjected to partial solvolysis in aqueous and methanolic hydrochloric acid. From x-ray examination of the residues a hypothesis is advanced regarding the reversion of cellulose III to cellulose I. The viscometric data indicated identical values of levelling-off degree of polymerization by hydrolysis and by methanolysis, which is at variance with certain published data showing lower values for methanolysis. The data therefore neither support nor disprove the idea of recrystallization during hydrolysis. 9 references.

Level-off degree of polymerization: relation to polyphase structure of cellulose fibers.

O. A. Battista and others (American Viscose Corp.). *Ind. Eng. Chem. 48:* 333-335 (February, 1956).

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MISCELLANY H

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Brief survey of textile machinery and accessories that will be on display. Photographs.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

MAN-MADE FIBERS A 2

Process and apparatus for cutting continuous filaments into short lengths.

R. H. Speakman (to Imperial Chemical Industries Ltd). BP 734 795, August 10, 1955. Through *BCIRA 36:* 179 (1956).

Apparatus for producing yarns and fibers of Terylene.

R. E. Jones (to Imperial Chemical Industries Ltd). BP 735 027, August 10, 1955. Through *BCIRA 36:* 180 (1956).

YARN PRODUCTION B

Process for the production of crinkled polyacrylontrile yarns.

Textile and Chemical Research Co. Ltd. BP 733 979, July 20, 1955. Through *BCIRA 36:* 144 (1956).

Apparatus for converting a bundle or tow of continuous filaments into a sliver or top of staple fibers.

Societe de Constructions Mecaniques de Stains (France). BP 734 937, August 10, 1955. Through *BCIRA 36:* 179 (1956).

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R. L. Wormell (to Courtaulds Ltd). BP 734 950, August 10, 1955. Through *BCIRA 36:* 181 (1956).

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W. A. Hunter and F. Singleton (to T.M.M. (Research) Ltd). BP 735 172, August 17, 1955. Through *BCIRA 36:* 182 (1956).

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K. P. Williams (to North American Rayon Corp.). USP 2 741 010, April 10, 1956.

The process of preparing fine linen yarns from mature seed flax.

L. E. Schulze (to Univ. of Minn). USP 741 894, April 17, 1956.

OPENING, PICKING, FIBER PREPARATION B 1

Apparatus for opening textile fibrous materials.

W. A. Hunter and F. Singleton (to T.M.M. (Research) Ltd). BP 735 173, August 17, 1955. Through *BCIRA 36:* 182 (1956).

Lint saver attachment for lint cleaners.

F. H. Stark. USP 2 740 993, April 10, 1956.

CARDING AND COMBING B 2

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C. Liversidge, R. Gibson and G. H. Thorndike (to Wool Industries Research Association). BP 734 078, July 27, 1955. Through *BCIRA 36:* 147 (1956).

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A. E. J. Morel and A. E. Apthorp (to J. W. and H. Platt Ltd.). BP 734 129, July 27, 1955. Through *BCIRA 36:* 146 (1956).

Weighing apparatus for feeding textile carding machines.

N. Taylor (to F. W. Taylor and Son Ltd). BP 735 361, August 17, 1955. Through *BCIRA 36:* 182 (1956).

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F. E. Rowe, Jr. (to Abington Textile Machinery Works). USP 2 740 994, April 10, 1956.

Card clothing stripper.

G. A. Pettit and R. A. Rusca. USP 2 742 673, April 24, 1956.

DRAWING AND ROVING B 3

Coiling devices for textile machines.

J. S. Dudley and C. D. Brandt (to Whitin Machine Works). BP 733 737, July 20, 1955. Through *BCIRA 36:* 147 (1956).

Double-apron type of high-drafting device.

J. Noguera (to Casablancas High Draft Co. Ltd.). BP 734 388, July 27, 1955. Through *BCIRA 36:* 147 (1956).

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P. Krauss, R. Wurst, K. Hohloch, and H. Scherr (to Sueddeutsche Spindelwerke Zinser). BP 734 503, August 3, 1955. Through *BCIRA 36:* 147 (1956).

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W. A. Hunter and W. Nutter (to T.M.M. (Research) Ltd). BP 734 820, August 10, 1955. Through *BCIRA 36:* 183 (1956).

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SKF Kugellagerfabriken GmbH (Germany). BP 734 951, August 10, 1955. Through *BCIRA 36:* 183 (1956).

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Top-roller carriers for textile drawing frames.

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R. B. Solanas (to Estirajes Balmes S.A.). USP 2 740 995, April 10, 1956.

Drawing frame needle bar mechanism.

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Cylinder bearing means for drafting systems of spinning machines.

J. J. Keyser (to Schiess AG.). USP 2 741 801, April 17, 1956.

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F. A. Preston (to Deering Milliken Research Corp.). USP 2 741 802, April 17, 1956.

Drawing roll clearer.

B. W. Gossett (to Deering Milliken Research Corp.). USP 2 741 803, April 17, 1956.

SPINNING, WINDING, TWISTING B 4

Means for producing tag ends at the start of a bobbin, especially on flyer frames.

J. R. Bee (to Fairbairn Lawson Combe Barbour Ltd). BP 733 700, 701, July 20, 1955. Through *BCIRA 36:* 148 (1956).

Process and apparatus for the assembling of flanges on a hub of wood or similarly yielding material.

M. Scaglia Soc. p. A. BP 733 971, July 20, 1955. Through *BCIRA 36:* 151 (1956).

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H. Halkyard and W. J. Fisher (to British Celanese Ltd). BP 734 029, July 20, 1955. Through *BCIRA 36:* 151 (1956).

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R. C. Gutermann. BP 734 042, July 20, 1955. Through *BCIRA 36:* 151 (1956).

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Saco-Lowell Shops. BP 734 069, July 20, 1955. Through *BCIRA 36:* 148 (1956).

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F. Holt and G. Lee (to Thomas Holt Ltd). BP 734 083, July 27, 1955. Through *BCIRA 36:* 151 (1956).

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W. Reiners (Germany). BP 734 516, August 3, 1955. Through *BCIRA 36:* 150 (1956).

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D. M. Hannah (to National Research Development Corp.). BP 734 773, August 10, 1955. Through *BCIRA 36:* 184 (1956).

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W. Reiners (Germany). BP 735 295, August 17, 1955. Through *BCIRA 36:* 186 (1956).

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E. H. Shattuck (to Joseph Bancroft and Sons Co.). USP 2 740 922, April 10, 1956.

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P. C. Consoletti (to Draper Corp.). USP 2 741 438, April 10, 1956.

Yarn winding spool.

W. Aupperle. USP 2 741 442, April 10, 1956.

Yarn tension regulator.

N. E. Klein (to Deering Milliken Research Corp.). USP 2 741 443, April 10, 1956.

Spindle mountings.

R. E. Reason (to Kapella Ltd). USP 2 741 517, April 10, 1956.

A spindle arrangement for spinning and twisting frames.

H. Staufert (Germany). USP 2 742 754, April 24, 1956.

Apparatus for winding of thread or yarn to form a well-balanced package that may be subsequently rotated at relatively high speeds without damaging vibration.

C. B. Kingsbury (to North American Rayon Corp.). USP 2 743 061, April 24, 1956).

Device for unwinding the thread waste from exhausted tubes and bobbins and rewinding the same.

W. Schweiter (to Schweiter Ltd). USP 2 743 062, April 24, 1956.

Stop-motion for winding and like machines.

D. G. Soussloff and R. V. Tata (to Universal Winding Co.). USP 2 743 063, April 24, 1956.

Strand tension device.

A. F. Pieper. USP 2 743 069, April 24, 1956.

Strand guide.

A. F. Pieper. USP 2 743 070, April 24, 1956.

YARNS B 5

Production of crinkled yarns.

Moulinage et Retorderie de Chavanoz (France). BP 733 707, July 20, 1955. Through *BCIRA 36:* 148 (1956).

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J. I. Pritchett and R. N. Markham (to Highland Container Co., Inc.). USP 2 739 705, March 27, 1956.

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G. Slayter and M. C. Anderson (to Owens-Corning Fiberglas Corp.). USP 2 741 009, April 10, 1956.

Method of making packing cord, beading cord, edge rolls and the like by embedding strands of glass fibers into a cellulosic body.

J. K. Francis (to Sackner Products, Inc.). USP 2 741 149, April 10, 1956.

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L. Vandamme and L. Rouyer (to Moulinage et Retorderie de Chavanoz). USP 2 741 893, April 17, 1956.

The method of manufacturing, collecting, and processing tow, twine or cordage from glass fibers.

G. S. McElroy (to Owens-Corning Fiberglas Corp.). USP 2 742 737, April 24, 1956.

FABRIC PRODUCTION C

Take-up mechanism for braiding machines for making elastic braid.

W. Draudt (to Textile Machine Works). USP 2 741 150, April 10, 1956.

WARPING, SLASHING, YARN PREPARATION C 1

Beams for textile machines.

F. Holt and G. Lee (to Thomas Holt Ltd). BP 734 881, August 10, 1955. Through *BCIRA 36:* 186 (1956).

Apparatus for cooking starch for a size mixing.

Springs Cotton Mills. BP 735 161, August 17, 1955. Through *BCIRA 36:* 186 (1956).

Process for sizing nylon yarn.

Du Pont Co. of Canada Ltd. BP 735 358, August 17, 1955. Through *BCIRA 36:* 187 (1956).

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R. E. Donaldson and C. C. White (to Eastman Kodak Co.). USP 2 743 193, April 24, 1956.

Sizing of textile yarn.

R. G. Berner and E. D. Bolinger (to Deering Milliken Research Corp.). USP 2 743 194, April 24, 1956.

WEAVING C 2

Gripper shuttle looms.

Sulzer Freres soc. anon. BP 733 744, July 20, 1955. Through *BCIRA 36:* 152 (1956).

Positive double-lift open-shed dobby.

J. K. Pitts and F. Davies (to British Cotton Industry Research Association). BP 733 777, July 20, 1955. Through *BCIRA 36:* 152 (1956).

Jacquard machines for a loom fitted with a reversing motion for pick finding.

A B. Fielding (to Devoge and Co. Ltd). BP 733 960, July 20, 1955. Through *BCIRA 36:* 152 (1956).

Means for weaving cut pile fabrics.

L. H. Waldron (to Woodward, Grosvenor & Co. Ltd). BP 734 130, July 27, 1955. Through *BCIRA 36:* 153 (1956).

A device for holding the draw hooks of double-lift dobbies.

R. Staubli, H. H. Staubli and O. Staubli (to Gebruder Staubli & Co.). BP 734 249, July 27, 1955. Through *BCIRA 36:* 152 (1956).

Loom pickers of vulcanized rubber reinforced with textile fabric.

M. Littlejohn (to Malcolm Rubber Co. Ltd). BP 734 386, July 27, 1955. Through *BCIRA 36:* 153 (1956).

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C. Wagner. BP 734 399, July 27, 1955. Through *BCIRA 36:* 152 (1956).

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Societe d'Applications Generales d'Electricite et de Mecanique (France). BP 735 010, August 10, 1955. Through *BCIRA 36:* 187 (1956).

Weft stop motions for looms for weaving.

E. Horrobin. BP 735 102, August 17, 1955. Through *BCIRA 36:* 187 (1956).

Use of rubberized fabrics in molding pickers and other loom components that are subject to shock loads.

F. W. Warren, J. H. Little and E. V. Bratby (to Dunlop Rubber Co. Ltd). BP 735 246, August 17, 1955. Through *BCIRA 36:* 187 (1956).

Looms.

J. B. van Burleigh (Netherlands). USP 2 741 269, April 10, 1956.

Picker stick check strap for looms.

A. A. Robert (to Arthur S. Brown Mfg. Co.). USP 2 741 273, April 10, 1956.

Stop motion for textile weaving machines.
A. A. E. De Luca. USP 2 741 274, April 10, 1956.

Cloth roll bearings for looms.
C. Van Deventer III (to National Plastics, Inc.). USP 2 741 516, April 10, 1956.

Loom for weaving tufted fabrics.
G. L. Mills (to Bates Mfg. Co.). USP 2 741 270, April 10, 1956.

Split shed dobby for loom.
E. R. Holmes (to Crompton and Knowles Loom Works). USP 2 741 271, April 10, 1956.

Let-off for looms.
A. J. Tosches (to Draper Corp.). USP 2 741 272, April 10, 1956.

Apertured fabric and method of weaving.
C. Robbins II and G. L. Mills (to Bates Mfg. Co.). USP 2 741 824, April 17, 1956.

A shed-forming structure adapted to be used in a loom.
A. Gentilini (Italy). USP 2 742 058, April 17, 1956.

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C. F. Libby. USP 2 742 932, April 24, 1956.

Stop recording attachment for looms.
W. P. Patterson. USP 2 742 933, April 24, 1956.

KNITTING C 3

Increasing the speed of a warp knitting machine.
R. Runknagel, W. G. Turnbull and T. E. Boynton (to Picotex Ltd). BP 733 772, July 20, 1955. Through *BCIRA 36:* 153 (1956).

Rectilinear knitting machine.
A. Dausse (to Etablissements Andre Gillier). USP 2 741 106, April 10, 1956.

Knitted fabric and method of making the same.
L. A. Runton and E. P. Mersereau, Jr. (to Alexander Smith, Inc.). USP 2 741 825, April 17, 1956.

FABRICS C 4

Stiffened woven fabrics.
P. Amyot. BP 734 087, July 20, 1955. Through *BCIRA 36:* 153 (1956).

Use of thermoplastic yarns in labels for attachment to textile articles by heat and pressure.
H. Meyer (to Polymark Ltd). BP 735 236, 280, August 17, 1955. Through *BCIRA 36:* 187 (1956).

Flame resistant brushed fabric.
L. Rogosin (to Beaunit Mills, Inc.). USP 2 741 108, April 10, 1956.

Method and means for forming a reversible pile fabric.
J. H. Wear (to Russell-Lacey Mfg. Co., Inc.). USP 2 741 196, April 10, 1956.

Heat carbonizable embroidery crinoline and method of making the same.
R. B. Stanford (to Kendall Co.). USP 2 741 569, April 10, 1956.

Multiple-ply textile fabrics.
G. E. Watts (to J. H. Fenner and Co. (Holdings) Ltd). USP 2 742 059, April 17, 1956.

Fabric with float design areas and method.
I. O. Moberg (to Fieldcrest Mills, Inc.). USP 2 742 060, April 17, 1956.

Laminated glass fabric.
A. Rusch. USP 2 743 207, April 24, 1956.

FINISHING AND CHEMICAL PROCESSING D

Heat setting of aromatic polyester fibers, yarns, fabrics and like shaped articles.
D. N. Marvin and J. G. Youings (to Imperial Chemical Industries Ltd). BP 735 171, August 17, 1955. Through *BCIRA 36:* 180 (1956).

Means for advancing fabric through various treatments in such a way that any incipient stretch or shrinkage caused by the treatment is automatically neutralized.
Rydboholms AG (Sweden). BP 735 341, August 17, 1955. Through *BCIRA 36:* 195 (1956).

CHEMICAL PROCESSES D 1

Addition of polyacrylamides and their methylol derivatives to viscose and subsequent curing of the resin in the extruded filaments (or fabrics woven from them).

American Cyanamid Co. BP 734 010, July 20, 1955. Through *BCIRA 36:* 143 (1956).

Apparatus for the aqueous liquid treatment of viscose thread.

Courtaulds Ltd. BP 734 150, July 27, 1955. Through *BCIRA 36:* 143 (1956).

A rubber-lined fire hose with high resistance to rotting.

A. E. Jackson and E. H. W. Searle (to George Angus and Co. Ltd). BP 734 245, July 27, 1955. Through *BCIRA 36:* 162 (1956).

Treatment of thread, particularly viscose rayon thread, with fluids.

Courtaulds Ltd. BP 734 324, July 27, 1955. Through *BCIRA 36:* 143 (1956).

Treatment of artificial threads with liquids.

H. A. Kuljian. BP 735 373, August 17, 1955. Through *BCIRA 36:* 179 (1956).

Optical bleaching agents and process for their manufacture.

Cassella Farbwerke Mainkur AG (Germany). BP 734 433, August 3, 1955. Through *BCIRA 36:* 160 (1956).

Use of inorganic acids, organic acids and/or hydrogen peroxide to produce chemical finishes on fabrics made of or containing nylon without much loss of strength.

Raduner and Co. AG (Switzerland). BP 734 493, August 3, 1955. Through *BCIRA 36:* 162 (1956).

Stiffening and polishing treatment with resins of articles made from fabrics.

J. G. Evans and G. Landells (to Bradford Dyers' Assoc. Ltd). BP 734 587, August 3, 1955. Through *BCIRA 36:* 162 (1956).

Bleaching of textile materials including acrylonitrile polymers, cotton and viscose rayon.

Farbenfabriken Bayer AG (Germany). BP 734 732, August 3, 1955. Through *BCIRA 36:* 160 (1956).

Process for treating fibrous materials with alkaline liquids of mercerizing strengths.

Farbenfabriken Bayer AG (Germany). BP 734 749, August 3, 1955. Through *BCIRA 36:* 162 (1956).

A dispersion of a nylon derivative that may be applied to woven and knitted fabrics as a finish.

H. C. Bick, Inc. BP 734 791, August 10, 1955. Through *BCIRA 36:* 195 (1956).

An apparatus for treating a fibrous product by means of air, steam, and similar gaseous fluid.

J. Dungler (Switzerland). USP Reissue 24 144, April 24, 1956.

Oscillating system for impregnating sheet material with liquid.

E. W. Smith. USP 2 741 111, April 10, 1956.

Apparatus for wet finishing of textiles.

G. E. Owens, Jr. and H. T. Rogers (to Rodney Hunt Machine Co.). USP 2 741 112, April 10, 1956.

Dry cleaning of cellulose acetate fabrics with a fading inhibitor in the solvent.

G. C. Ward, F. J. Porter and G. W. Seymour (to Celanese Corp.). USP 2 741 533, April 10, 1956.

Method of imparting durable anti-static properties to textile fibers and fabrics by means of water insoluble polymeric quaternary ammonium carboxylate salts.

M. Hayek (to E. I. du Pont de Nemours and Co.). USP 2 741 568, April 10, 1956.

Treatment of non-cellulosic textile fibers with anti-static agent and product thereof.

F. M. Schofield (to E. I. du Pont de Nemours and Co.). USP 2 742 379, April 17, 1956.

Method and apparatus for wet treating textile goods, loose fibers and like materials.

K. E. Chambers, W. S. Russon and F. E. Whiting (to Kroy Unshrinkable Wools, Ltd). USP 2 742 773, April 24, 1956.

Fibrous 2-phosphatoethyl ethers of cellulose and process of making the same.

L. H. Chance, J. Warren and J. D. Guthrie. USP 2 743 232, April 24, 1956.

Process which comprises printing an artificial precondensate resin in a pattern on a textile fabric to produce a combined goffered and chintz effect.

F. Vonaesch (to Joseph Bancroft and Sons Co.). USP 2 743 190, April 24, 1956.

DYEING AND PRINTING D 2

Metallizable dis-azo dyestuffs.

Sandoz Ltd. (Switzerland). BP 733 747, July 20, 1955. Through *BCIRA 36:* 160 (1956).

Machine for dyeing and washing fabric, yarn and other fibrous material in indefinite lengths.

Mezzera Soc. p. A. (Italy). BP 734 044, July 20, 1955. Through *BCIRA 36:* 161 (1956).

Manufacture of mono-azo dyestuffs insoluble in water.

Farbwerke Hoechst AG (Germany). BP 734 285, July 27, 1955. Through *BCIRA 36:* 160 (1956).

Method of producing a dyed striped pattern on a textile fabric.

Springs Cotton Mills. BP 734 528, August 3, 1955. Through *BCIRA 36:* 161 (1956).

Apparatus for striping textile fabrics.

Springs Cotton Mills. BP 734 542, August 3, 1955. Through *BCIRA 36:* 161 (1956).

Process for producing textile printing paste containing vat dyes with an alginate used as a thickening means.

A/S Protan (Sweden). BP 734 627, August 3, 1956. Through *BCIRA 36:* 161 (1956).

Process for the dyeing of threads and films from acrylonitrile polymers or copolymers.

Societe Rhodiaceta (France). BP 734 974, August 10, 1955. Through *BCIRA 36:* 194 (1956).

Process for coloring textile materials (Terylene).

W. H. Cliffe, G. T. Douglas and H. R. Hadfield (to Imperial Chemical Industries Ltd). BP 735 119, August 17, 1955. Through *BCIRA 36:* 194 (1956).

Apparatus for coloring raised surface portions of embossed fabric.

G. H. Cady and C. A. Horton (to United Merchants and Manufacturers, Inc.). USP 2 741 215, April 10, 1956.

Process of dyeing cellulosic fiber with a metal-free phthalocyanine.

C. J. Pedersen (to E. I. du Pont de Nemours and Co.). USP 2 741 531, 534, April 10, 1956.

Producing colored cellulosic textiles.

J. D. Guthrie. USP 2 741 532, April 10, 1956.

Aftertreatment of dyeings and compositions therefor.

C. Streck (to General Aniline and Film Corp.). USP 2 741 535, April 10, 1956.

Vat dyeing process.

D. E. Marnon (to General Aniline and Film Corp.). USP 2 742 340, April 17, 1956.

Aftertreatment of azoic-dyed cellulose derivatives.

E. L. Youse and D. E. Marnon (to General Aniline and Film Corp.). USP 2 742 341, April 17, 1956.

Method and apparatus for continuously maintaining uniform the composition of a composite dye liquor.

R. S. E. Hannay and W. Kilby (to Standfast Dyers and Printers Ltd). USP 2 742 914, April 24, 1956.

Textile print wash blanket.

J. V. Hawthorne (to W. R. Grace and Co.). USP 2 743 206, April 24, 1956.

Process for the dyeing of nylon fibers and fabrics with 5-chlorosalicylic acid.

D. X. Klein and J. Falcon (to Heyden Chemical Corp.). USP 2 743 231, April 24, 1956.

MECHANICAL PROCESSES D 3

Setting of thermoplastic fabrics and the like.

E. B. Bates. BP 734 488, August 3, 1955. Through *BCIRA 36:* 162 (1956).

Apparatus for feeding a combined carrier tape and adhesive tape and for separating the tapes.

A. L. Le Febvre, D. M. Small, A. O. Johnson and G. A. Cleveland (to Stanley Home Products, Inc.). USP 2 743 064, April 24, 1956.

Web rolling machine.

G. F. Watkins (to Rol-O-Matic Corp.). USP 2 743 065, April 24, 1956.

Weft-straightening apparatus.

J. D. Robertson. USP 2 742 685, April 24, 1956.

Art of curling or kinking stretched filaments and forming pads therefrom.

H. Marc (to American Pad and Textile Co.). USP 2 742 951, April 24, 1956.

Centering apparatus for use with a partially unwound roll of sheet material.

W. L. Sutherland (to Paul Peirce). USP 2 741 440, April 10, 1956.

Sheet feeding machines.

H. T. Backhouse and W. J. Pirie (Scotland). USP 2 741 479, April 10, 1956.

DRYING D 4

Tentering machines particularly for resin-treated fabrics.

E. G. A. Beck (to Mather and Platt Ltd). BP 733 256, July 6, 1955. Through *BCIRA 36:* 68 (1956).

Selvage drier-nozzle for tenter.

J. Dungler (Switzerland). USP 2 736 081, February 28, 1956.

Combination, with a movable steel band, of tentering clip devices.

J. Dungler (Switzerland). USP 2 736 082, February 28, 1956.

Drying apparatus.

E. J. Berger and H. W. Matthews (to Dexdale Hosiery Mills). USP 2 736 105, February 28, 1956.

Support members for wet, printed webs.

B. Offen. USP 2 736 106, February 28, 1956.

Drying apparatus for lengthy web material.

J. Dungler (Switzerland). USP 2 736 107, February 28, 1956.

Apparatus for drying rayon yarn packages impregnated with a substantially aqueous liquid.

A. S. Brown and T. W. Terwilliger (to Skenandoa Rayon Corp.). USP 2 737 569, March 6, 1956.

Web dryer.

T. F. A. Edvar (to Selas Corp.). USP 2 742 274, April 17, 1956.

TESTING AND MEASUREMENT E

YARNS E 2

Analysis of scientific data (yarn irregularity traces).

H. Bamford and L. Witcombe (to T.M.M. (Research) Ltd). BP 732 790, June 29, 1955. Through *BCIRA 36:* 72 (1956).

Determination of the mean deviation of a variable magnitude (yarn regularity) from its average value.

Zellweger AG Apparate und Maschinen Fabriken, Uster. BP 734 318, July 27, 1955. Through *BCIRA 36:* 167 (1956).

Thread strength testing apparatus.

S. Fürst and W. Reiners (Germany). USP 2 736 505, February 28, 1956.

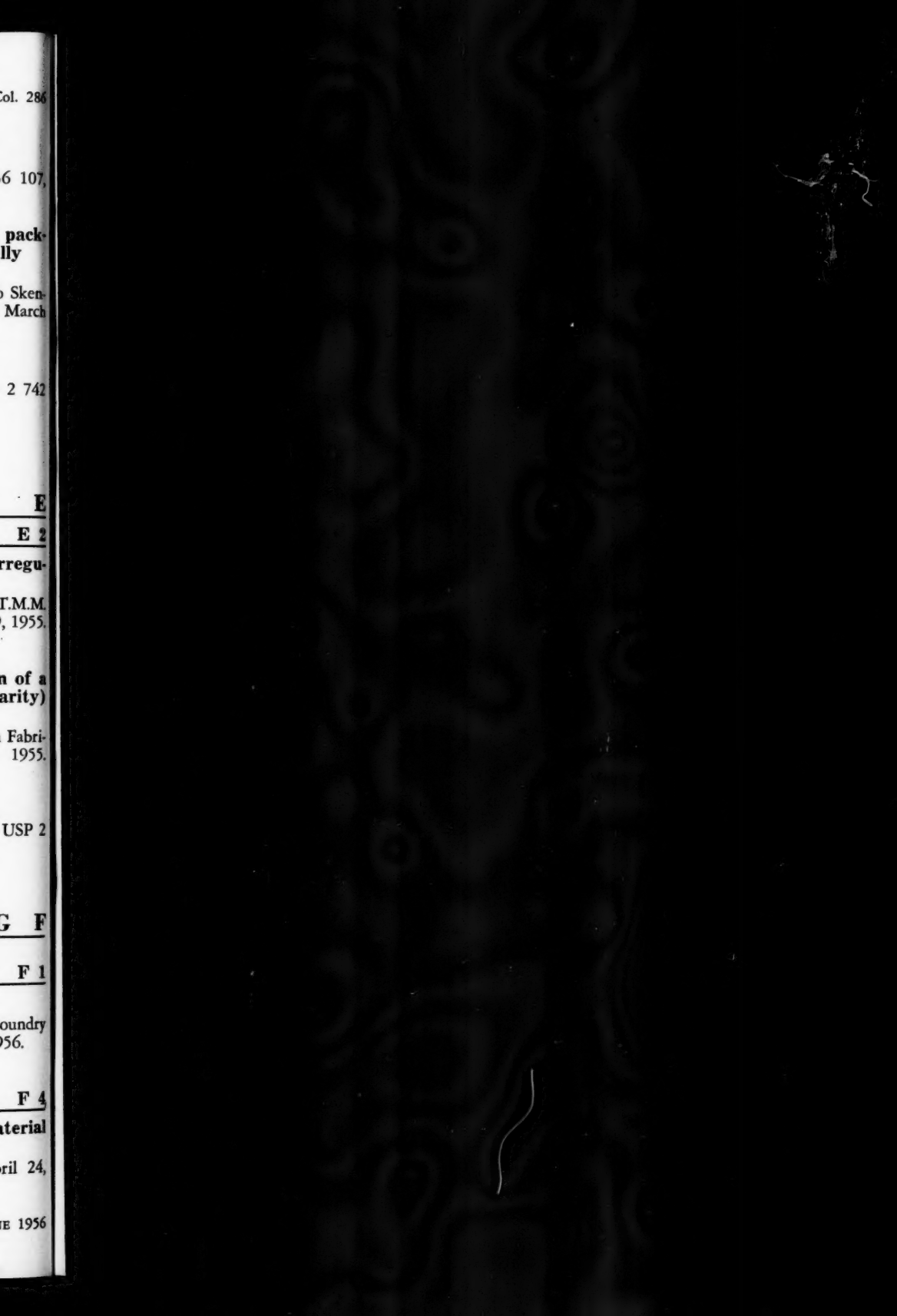
INDUSTRIAL ENGINEERING F

MACHINERY AND MAINTENANCE F 1

Variable speed drive apparatus.

T. F. Suggs (to Cocker Machine & Foundry Co.). USP 2 734 253, February 14, 1956.

OTHER F 4

Method of reclaiming fibrous material from waste dumps.

J. E. Kennedy. USP 2 743 012, April 24, 1956.